"Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A Randomised Controlled Trial".

Dissertation

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In partial fulfilment of the requirement for the degree of

M.Sc. in Obstetrics & Gynaecological Nursing

By

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July, 2025

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I, ***Priya Kumari***, an M.Sc. Nursing student enrolled in the batch of 2023–2025 with **enrolment number 2300091N07P78023**, hereby declare that the data submitted for my M.Sc. Nursing dissertation is my original work. I further confirm that this study was conducted solely by me. The Institute shall bear no responsibility for any disputes or conflicts of interest that may arise from this dissertation at any stage.

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This is to certify that the dissertation entitled, ***"Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A Randomised Controlled Trial"*** is a Bonafide and genuine research carried out by **Ms. Priya Kumari** under our guidance and direct supervision for the award of M.Sc. in Obstetrics and Gynaecological Nursing.

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PLAGIARISM REPORT

Report: CHAPTER 1 to 5 for plagragism

CHAPTER 1 to 5 for plagragism

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Institutional Human Ethics Committee- Student Research (IHEC-SR)
www.aiimsbhopal.edu.in Email: ihecpgr@aiimsbhopal.edu.in

Ref Number: IHEC/SR/2024/105 **Date: 1 Feb 2024**

Letter of Permission

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AIIMS, Bhopal Institutional Human Ethics Committee- Student Research (IHEC-SR) in its 9th meeting held on 1 Feb 2024 discussed your proposal titled **EFFECT OF FETUS TARGETED MATERNAL ACTIVITIES ON FETO MATERNAL ATTACHMENT AMONG PREGNANT WOMEN IN SELECTED TERTIARY CARE HOSPITAL OF BHOPAL- A RANDOMIZED CONTROLLED TRIAL .**

Following members attended the meeting:

Sr No.	Name/Post	Role
1.	Prof. Manisha Shrivastava, Prof. & Head, Dept. of Transfusion Medicine, BMHRC, Bhopal	Chairperson
2.	Prof. Rajnish Joshi, Prof. & Head, Dept. of General Medicine, AIIMS Bhopal	Clinician Member
3.	Prof. Amit Agrawal, Prof. & Head, Dept. of Neurosurgery, AIIMS Bhopal	Clinician Member
4.	Prof Sunita Athavale, Prof. & Head, Dept. of Anatomy, AIIMS Bhopal	Pre-Clinical Member
5.	Prof Girish C Bhatt, Professor, Pediatrics , AIIMS Bhopal	Clinical Member
6.	Dr. Sunaina Tejpal Kama, Additional Professor, Dept. of Anesthesiology, AIIMS Bhopal	Clinician Member
7.	Dr. Ujjawal Khurana, Associate Professor, Dept. of Pathology, AIIMS Bhopal	Para -Clinical Member
8.	Mr. Trivesh Goswami, Law Officer, AIIMS Bhopal	Legal Person
9.	Ms. Anjali Singh	Lay Person
10.	Prof. Neelkamal Kapoor, Former Prof & Head, Dept of Pathology, AIIMS Bhopal	Social Scientist
11.	Dr. Ankur Joshi, Additional Professor, Dept. of CFM, AIIMS Bhopal	Member Secretary

The decision of the committee is as follows:

The AIIMS, Bhopal IHEC-SR approves your research protocol. All research related activities must begin only after the date of this approval. The validity of this approval is till two years from the date of issuance. Please submit a closure report / renewal request before expiration of the validity for this approval.

Dr. Ankur Joshi
Member Secretary, AIIMS Bhopal IHEC-SR

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To speak gratitude is courteous and pleasant,
To enact gratitude is generous and noble,
But to live gratitude is to touch Heaven.

(Johannes. A. Gaestna)

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Priya kumari

ABSTRACT

Introduction

Feto-maternal attachment is a crucial emotional bond between a pregnant woman and her unborn child, significantly influencing maternal psychological well-being and neonatal outcomes. Strong attachment has been linked to improved maternal care behaviours and positive birth experiences. This study investigates the effectiveness of midwife led fetus-targeted maternal activities, on feto-maternal attachment among primigravida women.

Material and Methods

A Prospective Randomized Controlled Trial was conducted at a tertiary care hospital in central India, involving 60 primigravida women, with 30 each in the intervention and control groups. Primigravida women aged 18 or above, at or beyond 28 weeks of gestation with a normal course of pregnancy, possessing a smartphone, and available during data collection were recruited whereas those beyond 32 weeks + 6 days of gestation were excluded. Convenient sampling technique was used to recruit and then participants were randomly allocated to the experimental and control group using SNOSE technique. A 21-day structured intervention, designed by the researcher midwife, involving fetus-targeted maternal activities, which includes abdominal touch at three positions (upper abdomen, left and right lateral side and lower abdomen) and 15 positive affirmations, once in a day for 30 mins, before going to bed was administered to the intervention group. Adherence to the protocol was ensured through digital reminder and a compliance checklist. The Maternal Antenatal Attachment Scale by John T Codon, was used as a data collection tool. Relevant non-parametric tests were employed for data analysis using SPSS version 26.0. CTRI registration (CTRI No. 2024/08/072882) and ethical approval were obtained, with informed consent from all participants.

Results

Baseline assessments showed no significant differences in feto-maternal attachment levels between the intervention and control groups ($p = 0.56$). After three weeks, the intervention group showed a statistically significant improvement in attachment scores, $W = 465$, ($p = 0.000$), with 100% achieving high attachment levels compared to 47% in the control group, $W = 103$, ($p= 0.95$). Pre-intervention, between group, U value is 488.5, ($p=0.56$) and post-intervention, between group U value is 888.0, ($p= 0.000$) suggesting intervention was effective in improving feto-maternal attachment. Further analysis indicated significant associations between feto-maternal attachment with maternal education, residence, and socioeconomic status ($p<0.05$).

Conclusion

Fetus-targeted maternal activities significantly enhance feto-maternal attachment, offering an accessible, safe, cost-effective, and non-invasive approach in improving prenatal bonding with potential long-term benefits for maternal and neonatal outcomes. Integrating these activities into routine antenatal care by Nurses and midwives could promote positive maternal and neonatal outcomes.

Keywords: Feto-maternal attachment, fetus-targeted maternal activities, prenatal bonding, abdominal touch, randomized controlled trial, antenatal care.

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LIST OF ABBREVIATIONS

S. NO.	ABBREVIATIONS	EXPANSION
1.	AIIMS	All India Institute of Medical Sciences
2.	MAAS	Maternal Antenatal Attachment Scale
3.	IHEC-SR	Institutional Human Ethics Committee-Student Research
4.	OPD	Outpatient Department
5.	M.Sc.	Master of Science
6.	MS	Medical Superintendent
7.	I-CVI	Item – Content Validity Index
8.	S-CVI	Scale - Content Validity Index
9.	SPSS	Statistical Package for the Social Sciences
10.	WHO	World Health Organization
11.	SNOSE	Sequentially Numbered Opaque Sealed Envelop

LIST OF SYMBOLS

S.NO	SYMBOLS	EXPANSION
1.	%	Percent/Percentage
2.	>	More than
3.	<	Less than
4.	≤	Less or equal to
5.	H_0	Null Hypotheses
6.	N	Sample size
7.	=	Equal to
8.	p	Level of significance
9.	f	Frequency

CHAPTER 1

INTRODUCTION

"Before you were conceived, I wanted you. Before you were born, I loved you. Before you were here an hour, I would die for you. This is the miracle of Mother's love."

-Maureen Hawkins.

Background of the study

Pregnancy is described as a unique, exciting and indeed a joyous time in a woman's life. Pregnancy is a process and series of changes that takes place in woman's body and it undergo many changes both physically as well as psychologically during the nine months of pregnancy. During this time, women gain a deeper understanding of their creative and nurturing abilities, while providing a bridge to the future. At this juncture, the journey from anticipation to the miracle of new life is traversed amidst a spectrum of physical sensations and emotional thresholds. During pregnancy women not only adapt to the physical changes but she also develops a very unique and profound bond with the baby that is growing inside her womb, which is described as feto-maternal attachment.[1]

The feto-maternal attachment is the emotional bond that develops between a pregnant woman and her developing foetus. It involves feelings of affection, connection, and concern for the wellbeing of the developing foetus, fostering a strong maternal connection even before birth.[2]

In women's life, pregnancy is a time of heightened emotional vulnerability for women, when baby starts growing in them. From the fourth month of pregnancy onwards the bond deepens, and making their connection even more profound as the mother begin to feel the baby's movements. During this period, Mother starts expecting more about their baby, start imagining their baby's personality, nurturing dreams, and forming expectations for the future.[3]

Attachment is a fundamental human need, serving as an imperceptible connection and maintain a bond between mother and child. It plays a crucial role in a child's development, fostering a sense of trust and security that shapes their emotional well-being.[1]

A woman's first pregnancy has been described as an important period of mental preparation for motherhood [3]. The development of feto-maternal attachment plays an important role in shaping the postnatal childcare environment and the child's overall development. It can also influence the mother-infant bond after birth and the mother's ability to care for the child.[4]

Low maternal-foetal attachment, can contribute to various problems. It may impact the emotional and psychological well-being of both the mother and the developing foetus. Issues such as stress, anxiety, and depression can arise, potentially affecting prenatal care, birth outcomes, and the overall health of the child.[4]

In a study it is shown that inadequate development of attachment during pregnancy would negatively impact child's right brain regulation. Other research studies highlighted, lower emotional and mental development, school avoidance, poor social interactions, increased aggressiveness and hostility in childhood. In adolescence, it may lead to behavioural disorders, and in adulthood, it can increase the tendency of drug abuse [3].

A systematic review of effect of attachment-based interventions on prenatal attachment reports that the effect of proposed interventions such as using fetal palpations, attention to the fetus movements, and having singing, dancing and massage-through-the-womb sessions, and guide imagery in this field are not yet determined.[5]

A study showed that feto-maternal attachment behaviours is associated with advancing gestational age, and closely related with quickening of fetus at approximately 18 to 22 weeks of gestation.[6] Additionally according to our ancient literature; (garbh Sanskar) fetus can hear and understand sounds in the womb and distinguish between different frequencies and sounds.

And it is suggested that exposing the unborn child to a variety of positive, soothing sound can help in their cognitive development.[7] Garbh Sanskar is an ancient Indian practice that aims to nurture the unborn child's emotional, physical, and virtuous lifestyle for the pregnant mother.

Key components of garbh Sanskar: Diet and nutrition, meditation and yoga, Garbhsamvad (Baby talk), Positive thinking and affirmations, listening to soothing music, Spiritual and moral development, emotional and social support, Prenatal education can improve mother's physical, emotional and spiritual health during pregnancy and may develop a strong bond between the mother and the unborn child.[7]

Additionally one study have showed that more active the mother-child interactions during pregnancy causes higher maternal attachment with the fetus.[4] Therefore, nursing interventions that encourage mothers to actively engage in the fetus may lead to higher maternal attachment to the fetus.

Feto-maternal attachment is crucial as it serves as an indicator of the quality of the postnatal mother-infant relationship. The quality of mother-infant interactions predict mother-infant attachment which in turn predicts children's socio-emotional and mental health outcomes.[8]

Fetus targeted maternal activities include maternal touch and the positive affirmation sentences related to the fetus and the pregnancy outcome. Mother touching the abdomen by hands is the method to perceive the fetal position and to stimulate the awareness of the child's presence. Hence, I have considered that a nursing intervention which is fetus targeted maternal activities, might be useful for the enhancement of feto-maternal attachment.

Need of the study

Pregnant women from diverse cultural and ethnic backgrounds experience unique connections with their babies during pregnancy, these unique experiences are described as feto-maternal attachment.

Feto-maternal attachment during pregnancy remains an underexplored area in India. In India, in which the mortality rate for women is 97 per 100,000 live births and the neonatal mortality rate is 20 deaths per 1,000 live births. (WH0,2020), placing India 12th among 52 lower-middle-income countries. Additionally, one-third of babies in India are born with low birth weight (<2.5 kg), largely due to widespread maternal undernutrition. Promoting healthy feto-maternal attachment can encourage women to adopt optimal health practices during the earlier period of pregnancy, potentially reducing maternal and child morbidity and mortality rates.[1]

Stephenson and Sanjeev Kumar highlight that maintaining good maternal nutrition during pregnancy help to grow strong, healthy placenta, which influences the baby's birth weight and long-term health. Similarly, positive emotions such as love, joy, and gratitude, along with healthy thoughts, promote the unborn child's growth, in the womb of the mother, while negative emotions, including stress, depression, and anxiety, can adversely affect development of the baby in the womb.[9]

Feto-maternal attachment is vital for the emotional, psychological, and physical wellbeing of both the mother and the fetus. It sets the foundation for a positive pregnancy experience and can contribute to healthier outcomes for both during pregnancy and after childbirth.[10]

Healthy feto-maternal attachment may serve to allow women to adopt optimal health practices earlier, thereby on a larger scale contribute toward reduction of obstetric maternal and child morbidity and mortality.

Therefore, looking at the added benefits, safety and cost-effectiveness of the intervention and researcher's interest and in response to that strong evidence base for feto-maternal attachment there is need to took that study. The present study aims to find the effectiveness of one simple non-pharmacological method, fetus targeted maternal activities on feto-maternal attachment among pregnant women.

Research Question

Is there any effect of fetus targeted maternal activities on feto-maternal attachment?

Research problem

Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A randomised Controlled Trial.

OBJECTIVES

The objectives of the study were:

1.To assess the feto-maternal attachment among pregnant women.

2.To determine the effect of midwife led fetus targeted maternal activities on feto-maternal attachment among pregnant women.

3.To find out the association between feto-maternal attachment and selected socio demographic variables among pregnant women.

HYPOTHESIS

H01: There is no significant difference in feto-maternal attachment before and after the intervention at 0.05 level of significance.

H02: There is no significant association between feto-maternal attachment and selected socio demographic variables at 0.05 level of significance.

OPERNATIONAL DEFINITIONS

Effect: In Present study it refers to the extent to which fetus targeted maternal activities has an impact on the feto-maternal attachment among pregnant women will be assessed by structured tools and records.

Fetus targeted maternal activities: It is structured interventions designed by the researcher midwife which involve the following activities:

1. Maternal touch to sense the fetal movements in the womb by touching the abdomen (at three areas that is Upper abdomen (10 minutes), Left and Right lateral side (10 minutes), Lower abdomen (10 minutes)) for 30 minutes a day.

2. Verbalization of 15 Positive affirmations sentences (5 for each area of touch) focusing on the fetal well-being and positive health outcome after the delivery.

Feto-maternal attachment: In present study it refers to the emotional bond that develops between a pregnant woman and her developing foetus. It involves feelings of affection, connection, and concern for the wellbeing of the developing foetus, fostering a strong maternal connection even before birth.

Pregnant women: In the present study, it refers to primigravida women who has crossed or is at 28 weeks of gestation but less than 33 weeks of gestation.

Delimitation

The study is delimited to pregnant women

1. Attending selected tertiary care hospital in Bhopal.
2. Who met the inclusion criteria and consented to participate in the study.

Conceptual Framework

A conceptual framework is an analytic tool with several variations. It is used to make theoretical, abstract and conceptual similarities and systematize the ideas of the present study. Stronger the conceptual framework greater is the effect of the concepts. Therefore, they are used to make distinctions of idea. Conceptual frameworks deal with abstracts that are put together due its similarity with the subject generated.

Maternal Role Attainment theory by Ramona Mercer is applied in the present study as Maternal Role Attainment is defined as the process in which a mother acquires the competence in the role and incorporates maternal behaviours into her established role set. This will help her recognises as a mother.

In the above model of maternal role attainment, it is described in three systems microsystems, mesosystem and macrosystem. The microsystem is the immediate environment which includes family and factors such as family functioning, mother-father relationships, social support and stress. This is considered to be most influential on maternal role attainment. The mesosystem includes extended family, work, and other entities within the mothers more immediate community. The macrosystem refers to the general prototype existing in a particular culture or transmitted cultural consistencies which include the social, political and cultural influences on other two system. Maternal role attainment is a process that follows four stages of acquisition: anticipatory stage, formal stage, informal stage and personal stage. The anticipatory 13 (commitment and preparation pregnancy) stage begins during pregnancy and includes the initial social psychological adjustments to pregnancy. During this period the mother learns the expectations of the role, fantasizes about the role, related to the fetus in the womb, and begins role play. Formal stage (Acquaintance, practice, and physical restoration First 2 weeks) begins with the birth of the baby and includes learning and taking of the role of the mother. The

informal stage (Approaching normalization 2 weeks to 4 months) begins as the mother develops unique way of dealing with the role not conveyed by the social system. They make her new role appropriate to her existing lifestyle base on past experiences and future goals. The last stage, personal stage (Integration of maternal identity 4 months and beyond) is the role identity stage, where the mother experiences harmony, confidence and competence in the way she performs the role and the maternal role is achieved.

In the present study, the first stage commitment and preparation/ anticipatory which starts during pregnancy can be included as it deals with the social and psychological adjustments to pregnancy.

The other three stages formal, informal and personal are not included in the present study as these stages described the development of maternal role attainment after the birth of the baby.

Summary

This was the preliminary chapter which comprised background of the study, justifying the necessity of undertaking the study, research problem, and objectives of the study, hypothesis, operational definition, delimitation, and conceptual outline.

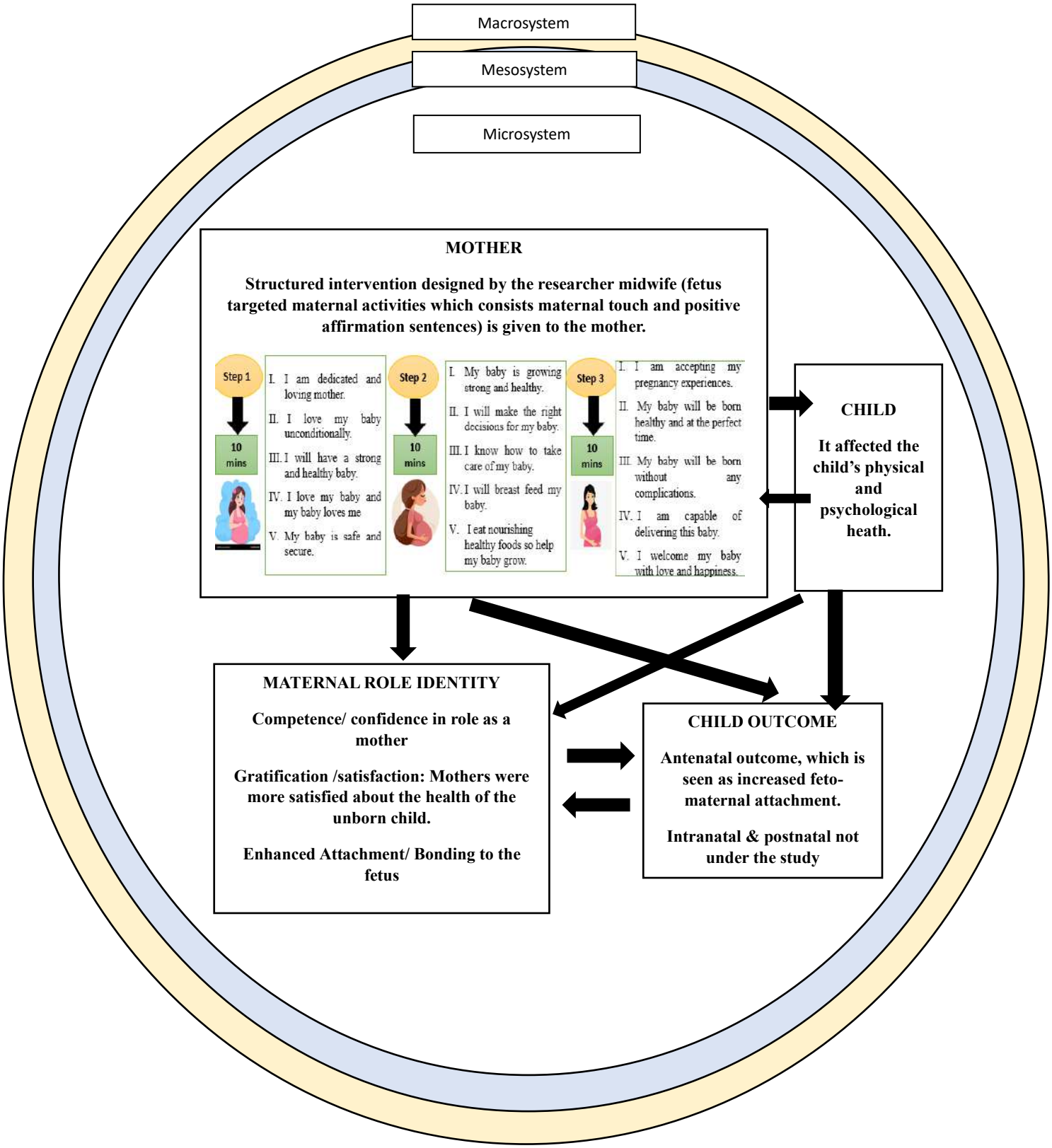
Macrosystem
Mesosystem
Microsystem
MOTHER
Structured intervention designed by the researcher midwife (fetus targeted maternal activities which consists maternal touch and positive affirmation sentences) is given to the mother.
Step 1
10 mins
I. I am dedicated and loving mother.
II. I love my baby unconditionally.
III. I will have a strong and healthy baby.
IV. I love my baby and my baby loves me
V. My baby is safe and secure.
Step 2
10 mins
I. My baby is growing strong and healthy.
II. I will make the right decisions for my baby.
III. I know how to take care of my baby.
IV. I will breast feed my baby.
V. I eat nourishing healthy foods so help my baby grow.
Step 3
10 mins
I. I am accepting my pregnancy experiences.
II. My baby will be born healthy and at the perfect time.
III. My baby will be born without any complications.
IV. I am capable of delivering this baby.
V. I welcome my baby with love and happiness.
CHILD
It affected the child's physical and psychological heath.
MATERNAL ROLE IDENTITY
Competence/ confidence in role as a mother
Gratification /satisfaction: Mothers were more satisfied about the health of the unborn child.
Enhanced Attachment/ Bonding to the fetus
CHILD OUTCOME
Antenatal outcome, which is seen as increased feto-maternal attachment.
Intranatal & postnatal not under the study

FIGURE 1: Conceptual framework based on Model of maternal role attainment.

CHAPTER II

REVIEW OF LITERATURE

Introduction

A literature review is an assembly of sources that establishes the foundation for future investigation. It is deemed essential for research endeavours and encompasses the process of locating, choosing, meticulously assessing, and succinctly summarizing existing knowledge pertaining to a specific subject. Review of literature equips and empowers the researchers to theorize the research ideas.

According to Abdellah and Levine, the material gathered in the literature review should be included as a part of the research data since it influences the problem and research." [11]

Examining the literature aids in determining the suitable methodology, crafting research instruments, analysing data, and linking findings across studies to advance knowledge within a particular field. The researcher conducted a thorough literature review on the research subject to gain a deeper understanding of the issue and gather pertinent information necessary for structuring the study in a rigorous manner, aiming to attain the desired outcomes.

Search strategy

Primary and secondary sources were reviewed to identify specific and relevant literature. The search included databases, professional organizational website (e.g., WHO, ACOG), and books on midwifery practice, feto-maternal attachment, garbh Sanskar. Keywords used in the search includes “fetus targeted maternal activities,” “Maternal fetal interaction,” “Prenatal bonding,” “Pregnant women,” “Positive affirmations during pregnancy,” “Maternal abdominal touch,” “Randomized controlled trial,” Synonyms of these keywords and different spellings were also considered to ensure a comprehensive search. The databases searched includes the cumulative

Index of Nursing and Allied Health Literature (CINAHL), PubMed, web of Sciences, Cochrane library and Scopus, which contain the majority of studies within the nursing and midwifery field.

Initially the search strategy began with single keyword searches and then Boolean operators (AND/OR) were added to combine words to retrieve all relevant studies.

The Boolean operators were used as -AND, OR such as “Fetus-targeted activities” OR “prenatal bonding” AND “Feto-maternal attachment” “Talking to the baby” AND “Pregnancy” “Maternal touch” AND “Feto-maternal attachment” “Positive affirmations” AND “pregnant women”.

The review included 18 research articles, comprising one systematic review, one Quasi-experimental study, seven intervention studies, eight descriptive studies, and one qualitative study.

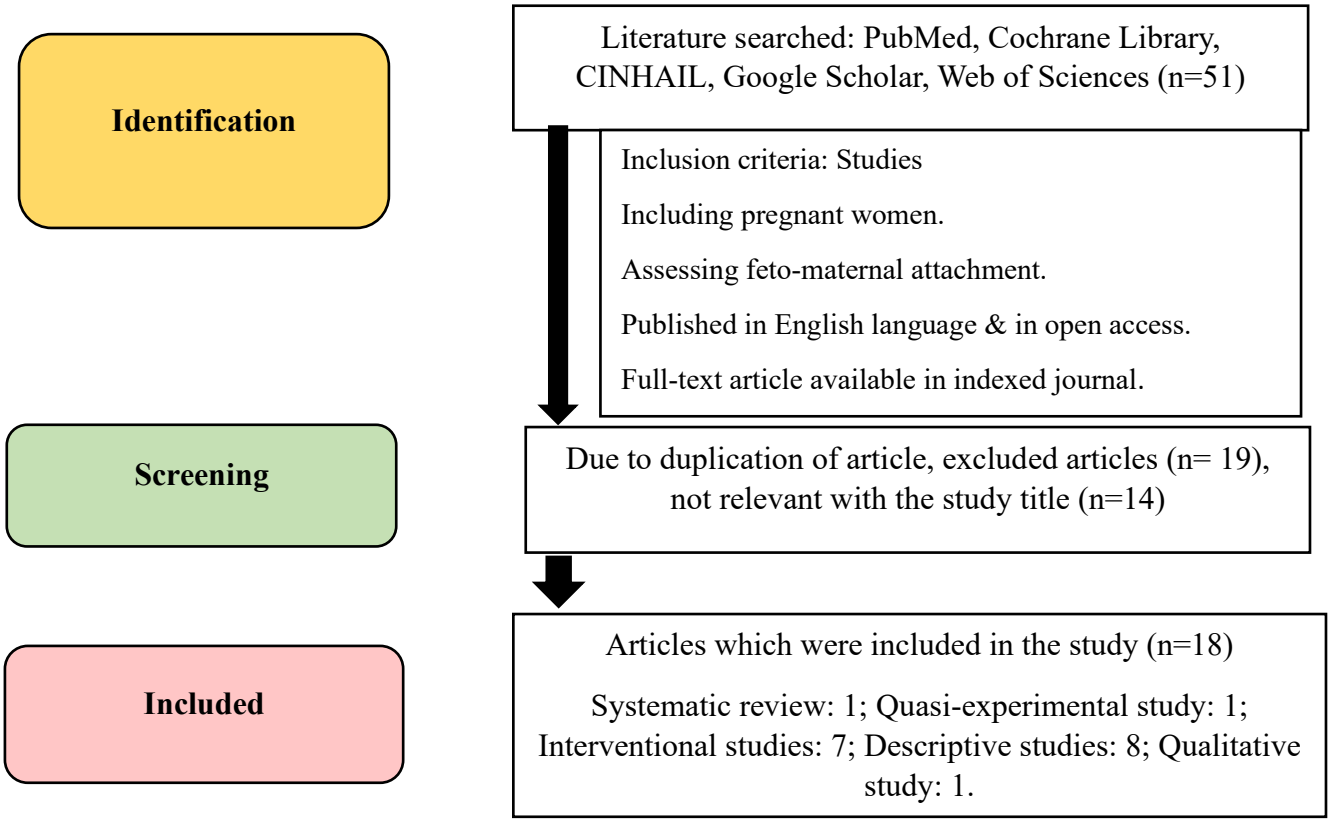
Identification
Literature searched: PubMed, Cochrane Library, CINHAIL, Google Scholar, Web of Sciences (n=51)
Inclusion criteria: Studies
Including pregnant women.
Assessing feto-maternal attachment.
Published in English language & in open access.
Full-text article available in indexed journal.
Screening
Due to duplication of article, excluded articles (n= 19), not relevant with the study title (n=14)
Included
Articles which were included in the study (n=18)
Systematic review: 1; Quasi-experimental study: 1; Interventional studies: 7; Descriptive studies: 8; Qualitative study: 1.

FIGURE 2: Schematic representation of search strategy from databases.

The retrieved literature has been organized and presented under the following headings:

1. Literature related to feto-maternal attachment.
2. Literature related to factors influencing feto-maternal attachment.
3. Literature related to effectiveness of nursing interventions on feto-maternal attachment.

1.Literature related to feto-maternal attachment.

Feto-maternal attachment is a term which shows imperceptible connection and maintain a bond between mother and baby in her womb which is considered an important part of fetal development.[1]

A Qualitative research study on 25 pregnant women found that women with more knowledge about pregnancy could express more attachment towards their baby. Majority of the women planned their pregnancy and they express their positive attachment towards the fetus from day one, for those with unplanned pregnancy there was hesitation in the early days.

Monitoring fetus heartbeat, observing the baby's feature through sonography and feeling fetus movements affects the attachment in the positive way. Women are mindful about the Cultural belief and practices and they do whatever they feel are beneficial for their baby's well-being. Family support matters a lot and plays a crucial role in fostering positivity during pregnancy, which shows in this study. Psychological well-being is an important factor which makes women adopting healthy practices during pregnancy.[1]

A cohort study with 839 women, which aimed to evaluate the association between maternal-fetal attachment and perceived parental bonds of pregnant women found that the perceived paternal overprotection was associated with a higher maternal-fetal attachment after adjustment

(B 2.00 CI95% 0.30; 3.70). Additionally, the pregnant women who were in the first trimester of pregnancy ($p < 0.001$), who did not live with a partner ($p = 0.018$), and who did not feel supported by the baby's father during pregnancy ($p = 0.014$) presented lower scores of maternal-fetal attachment.[12]

A descriptive study among 50 couples selected by convenience sampling technique to compare the mother and father fetal attachment was carried out. Using modified maternal-fetal attachment scale and paternal fetal attachment scale were used to assess the attachment. Results shows that there is higher maternal attachment than paternal attachment with fetus. The association of Maternal fetal attachment was found to be statistically significant with number of pregnancies, living babies, number of deliveries, planning of pregnancy, infertility history, conception method and marital status. Paternal fetal attachment was associated with number of live children, duration of marriage, and method of conception.[13]

A cross-sectional study was conducted on 315 pregnant women between 33 and 41 weeks of gestation to find out the correlation of maternal-fetal attachment and health practices during pregnancy with neonatal outcomes. Data was collected using Health Practices in pregnancy Questionnaire and the Maternal Fetal Attachment scale. Result revealed positive and significant correlation between the health practices and maternal-fetal attachment. Additionally, a significant positive relationship was also observed between maternal- fetal attachment and neonatal outcomes. The study concluded that maternal-fetal attachment and health practices during pregnancy are significantly and positively correlated with neonatal outcomes.[14]

In a study on Italian women using Prenatal Attachment Inventory to assess the maternal-fetal attachment with the aim to investigate the internal structure of a questionnaire and other parameters like the Prenatal Attachment Inventory. It also involved to address the role of gestational age, couple adjustment and depressive symptomatology on maternal-fetal

attachment. This study concludes that Prenatal attachment increases as gestational age advanced and as mothers perceived greater levels of couple adjustment, which promoted maternal-fetal attachment strength, positive affect and maternal-fetal attachment interaction and differentiation.[15]

In a study on effect of fetal movement counting on antenatal attachment and maternal worries among Primigravida. The sample included 100 primigravidae of 32-36 weeks of gestation. Data were collected using prenatal attachment inventory and Cambridge worry scale. Result demonstrated a significant improvement in the study group which shows reduced maternal worries. In conclusion it was mentioned that antenatal attachment serves as an effective approach to encourage parenting process. It was identified that the vital measure to improve maternal-fetal attachment is fetal movement, and will also decreased maternal worries during pregnancy. [16]

Women with higher maternal fetal attachment during pregnancy had more secure attachment styles and their children had more optimal development during the early childhood period. Which shows other way for less attachment women with delay in childhood development. Findings recommended for early identification of disruptions in attachment during pregnancy may be beneficial in tailoring interventions focused on the mother-child dyad..[17]

2.Literature related to factors influencing feto-maternal attachment.

In a study on maternal- fetal attachment and perceived stress during pregnancy among 53 pregnant women with a mean age of 26.4, describes about the several psychological factors which significantly influence mother's attachment to her fetus. The factors include anxiety of the mother, attitude and access to procedures like USG. This study shows that there is inverse relationship between maternal stress and maternal fetal attachment and an r of -0.55 indicates

that this is of moderate level. It suggests that in majority of the cases, higher the stress level, lower were the scores of maternal fetal attachment.[18]

For a successful relationship between a mother and her developing baby in the womb, there are diverse factors such as psychophysiological elements which influence the maternal-fetal relationships. In a study, which is conducted among 339 pregnant women to investigate whether factors of stress, symptoms during pregnancy and mindfulness systematically related to maternal-fetal attachment. I t is found that pregnancy stress is the most robust factor of maternal-fetal attachment. The mindfulness and stress during pregnancy both have significant direct effects on maternal-fetal attachment, $p < 0.00$. The mindfulness has a significant inverse, direct effect ($ß = -.13$, $p < 0.05$) on stress during pregnancy. But the variable of symptoms during pregnancy is no significant effect on maternal-fetal attachment.[19]

In a study among 350 pregnant women selected by convenience method to find the out the predictive factors of maternal fetal attachment among pregnant women and different structured interview schedule, anxiety inventory tool and pictorial presentation were used to measure the attachment. Result shows more than three quarters (81.4%) of the study subjects had high attachment level compared to only 13.4% were moderately attached. A positive correlation between maternal-fetal attachment and their level of perceived social support was found. Maternal fetal attachment level was associated with some predictive factors. Namely age of the women, number of pregnancies, planned/desired pregnancies, fetal sex identification, time of the first antenatal visit, and presence of social support.[20]

Multidimensional and self-compassion is one of the important factors predicting fetal maternal attachment. A cross-sectional study was carried among 394 primigravida women. Data collected were on multidimensional self-compassion and fetal -maternal attachment. Result shows positive correlation between fetal-maternal attachment and total self -compassion with

its dimension. Based on the findings, the mean (standard deviation) value for multi-dimensional self-compassion was 59.81 (6.4) and for fatal-maternal attachment was 81.63 (9.5). There was a positive correlation between fatal-maternal attachment and total self-compassion (P = 0.005, r = 0.30).[21]

In a study on maternal-fetal attachment and factors among Iranian 400 mothers it was found that factors like the race, higher maternal age, gestational age, higher education, planned pregnancy, sex of fetus and assessing health of fetus have positive influenced on prenatal attachment. The factors with negative effects are tobacco use, multiparity and high-risk pregnancy. Some factors shows no relationships between attachment like previous marriage, infertility, abortion, type/ number of USG, participation in antenatal classes.[22]

It is described that the most important basic form of human relations is prenatal attachment that mother developed during pregnancy which describes as parents' emotions, perceptions and behaviours. The cognitive and emotional level development of a child is very much related with the quality of the relationship between infant and parents. It is important to identify the factors which influenced attachment of parents towards their fetus during pregnancy. psychological interventions has to be planned in antenatal units to maintain a positive physical and emotional development of the child.[23]

3.Literature related to effectiveness of nursing interventions on feto-maternal attachment.

A Quasi-experimental study was conducted among 90 pregnant women with an aim to determine the effects of health counselling and follow-up care on maternal-infant attachment. The study demonstrated that the mean Prenatal attachment inventory score was high both in experimental and control groups and there was no difference between the groups ($p > 0.05$). In both groups, the mean Prenatal attachment inventory score was above the average scale score,

but it was significantly higher in the group receiving health counselling and follow-up care compared to the score of the other group ($p < 0.05$). The study demonstrated that health counselling and follow-up care contributed significantly to the mother-infant attachment.[24]

Fetal movement counting is quantification of fetal movements as perceived by the mother that interprets the general condition of the fetus in the womb. This method can be used for continuous monitoring and evaluation of the fetal health by the mother as it is inexpensive, non-invasive, easy and simple in nature. In a two-group pretest-post-test experimental study which is carried among 100 primigravida women of 32-36 weeks of gestation with an aim to

identifying the effect of fetal movement counting on maternal-fetal attachment and maternal worries, it is found that a significant level of improvement in prenatal attachment was seen in the study group mothers. A highly significant statistical difference in PAI between the groups at p<.001 was identified. Maternal worries reduced among mothers in the study group the independent t value between the group shows a statistical significance at the level of p<.001. Weak negative correlation was seen between PAI and CWS. Correlation between PAI and fetal movement counting performance showed a weak positive correlation.[25]

In a study in which the effect of nursing intervention program using abdominal palpation of Leopold's manoeuvres is seen on maternal-fetal attachment, it was found that after the intervention programs, the PAI score in the intervention group was raised significantly at the 32nd, 34th, and 36th weeks' gestation compared to baseline ($P < 0.01$). Similarly, the control group showed an increase in the PAI scores at the 32nd, 34th, and 36th weeks' gestation ($P < 0.05$ or $P < 0.01$). Because the score increased more in the intervention group, significant differences between both groups were seen at the 34th and 36th weeks ($P < 0.01$ and $P < 0.05$, respectively). The frequency of talking to the fetus in the intervention group also increased to be greater at the 32nd, 34th, and 36th weeks' gestation than at baseline ($P < 0.01$). In the control

group, a significant increase was found at the 34th and 36th weeks' gestation ($P < 0.01$ and $P < 0.05$, respectively). Then, the frequency of talking to the fetus was higher in the intervention group than in the control group at the 32nd, 34th, and 36th weeks ($P < 0.05$ or $P < 0.01$). Meanwhile, the maternal awareness score of fetal position increased to be significantly greater in the intervention group at the 32nd, 34th, and 36th weeks' gestation than at baseline ($P < 0.01$), as well as at the 34th and 36th weeks' gestation in the control group ($P < 0.05$ and $P < 0.01$, respectively).[4]

A study explored the impact of music and singing interventions during pregnancy on maternal well-being and mother–infant bonding. This randomized controlled study involved 172 pregnant women and assessed the effects of active singing and passive music listening. The results of this study demonstrated that both interventions led to significant improvements in emotional well-being, reduced stress (measured by cortisol levels), and increased bonding between mother and infant (indicated by oxytocin levels). Notably, the singing group showed greater reductions in cortisol levels and improved perceived closeness to the unborn child when compared to the music group. The findings of this stud suggested that music, and particularly singing, can serve as simple and effective interventions to enhance maternal well-being and can foster mother–infant bonding during pregnancy.[2]

In similar randomised control trial study among 120 pregnant women in which influence of maternal singing on well-being, postpartum depression and bonding was carried out and found that the participants of the intervention group showed a significant reduction of cortisol ($p=0.23$) and an improvement of attachment and mood from start to end of the intervention session (all $p < 0.008$).[26]

Research Gap Analysis

The review of literature highlighted the existence gaps in literature, including;

- The majority of literature focuses on the effect of maternal singing, music intervention on the stress, anxiety and postnatal depression.
- Limited studies are available that independently assess the effect of nursing intervention on feto-maternal attachment. No research literature is found to use positive affirmation sentences focusing on the well-being of the fetus and for positive outcome of the pregnancy.

Summary of the Chapter

This chapter dealt with a review of literature related to the stated problem. The researcher was able to obtain understanding of the subject under investigation and establish the necessity for the study with the aid of this literature review. It also assisted the researcher in designing the investigation, creating a tool for the data collection process, and creating an analytic strategy.

CHAPTER III

MATERIALS AND METHODS

Material and methods are the critical framework for the description of the research approach, variables (independent and dependent), research setting, population, sample and sampling techniques, plan and procedure for the data collection, analysis and presentation.

An analytical approach to resolve the research challenge is through research techniques. The methodology specifies the general framework for setting up the procedure for gathering reliable and relevant data for the study.

This chapter covered the study's methodology in detail, outlining the research strategy, design, variables, study setting, population, sample, and sampling technique, as well as the creation and description of tools, description of intervention, ethical consideration, feasibility testing (a pilot study), data collection process, and data analysis plan.

Research Approach

The study adopts a **Quantitative, True Experimental** research approach, which is designed to determine the cause-and-effect relationship between the independent variable (fetus targeted maternal activities) and the dependent variable (feto-maternal attachment). This approach ensures manipulation, control, and randomization, which are the key characteristics of a true experimental study.

Research Design

A Prospective Randomised Controlled Trial (**pre-test-post-test control group design)** was used for this study. This design aims to assess the effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women. Participants were randomly assigned to

either the experimental group or the control group to observe the changes in feto-maternal attachment.

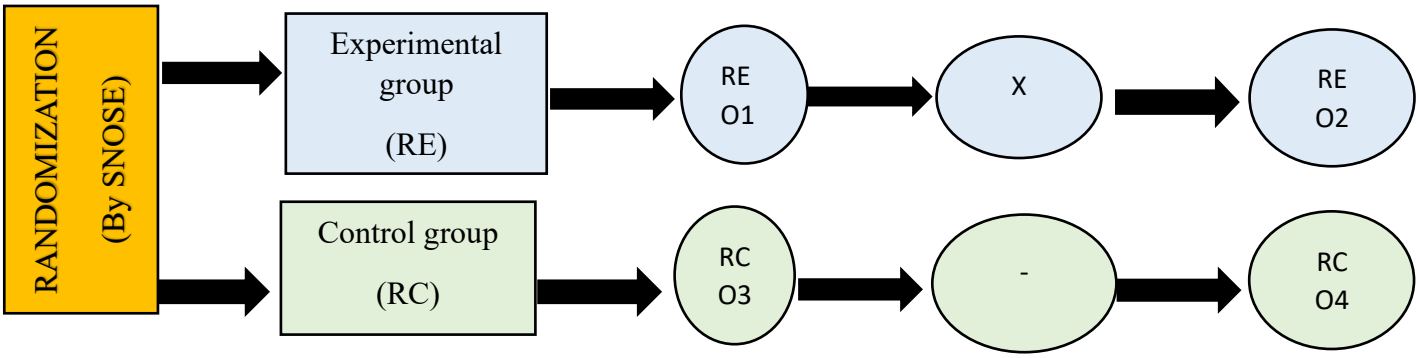

FIGURE 3: Schematic representation of research design

SNOSE: sequentially numbered opaque sealed envelope

X: **S**tructured intervention designed by the researcher midwife.

RE O1, RC O3: Maternal antenatal attachment score (Pre-Test)

RE O2, RC O4: Maternal antenatal attachment score (Post-Test)

Randomization

Randomization is one of the cornerstones of the RCT and a true random allocation procedure should be used.

The randomization process was meticulously executed to ensure unbiased allocation of participants into the intervention and control groups. It involved the use of sealed, opaque envelopes, each consecutively numbered; the sealed opaque envelope was used for allocation concealment. These envelopes contained information about the group to which the Participant would be assigned based on a pre-established, computer-generated random sequence of numbers. The randomization followed a 1:1 ratio between the intervention and control groups.

To maintain the integrity of the randomization process, the envelopes were prepared in advance by an individual not directly involved in the study. This person was responsible for generating the random sequence and assembling the envelopes. Using sequentially numbered opaque sealed envelopes (SNOSE), the researcher herself further divided the individuals in the OPD into groups.

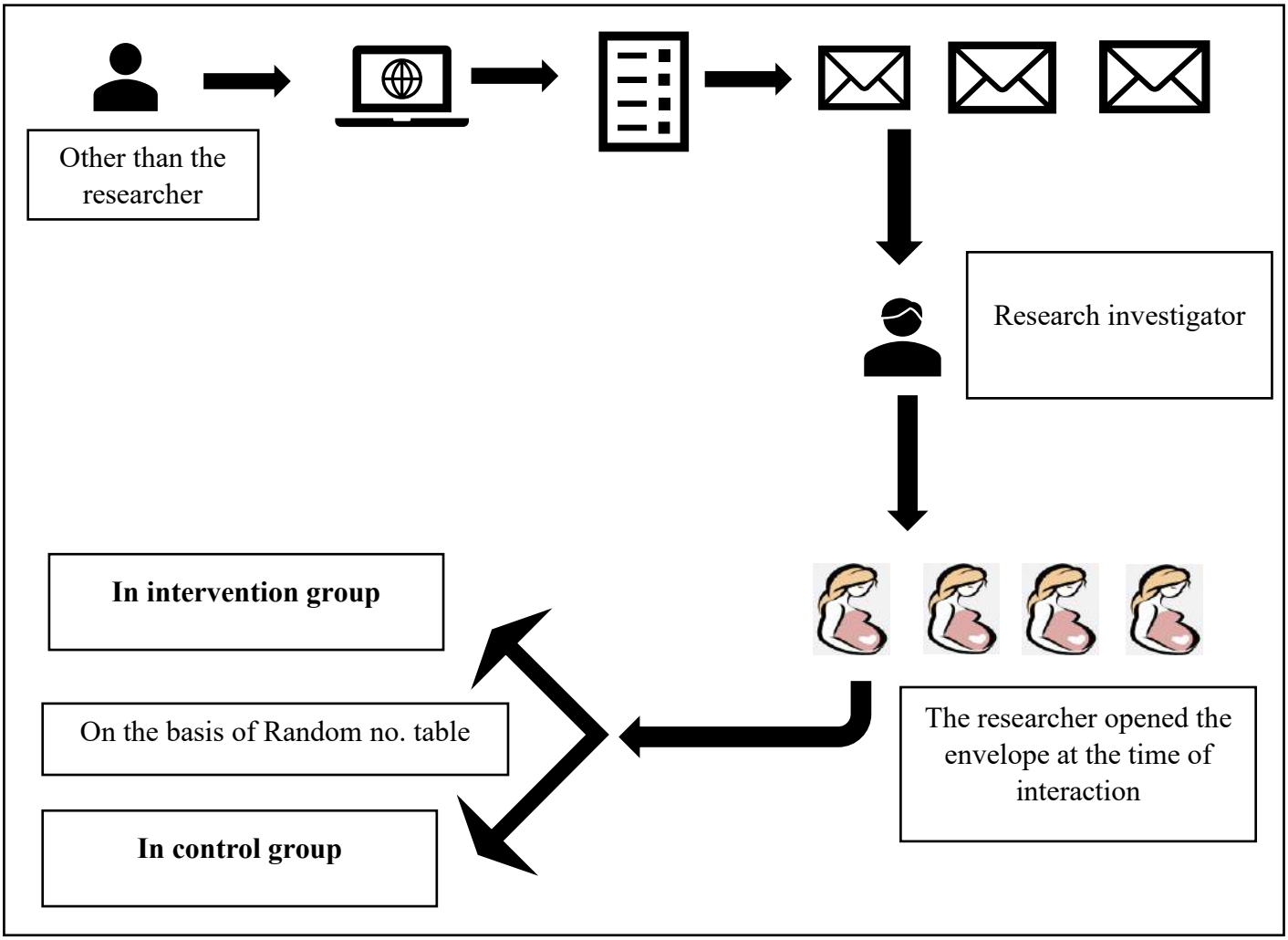
Other than the researcher
Research investigator
In intervention group
On the basis of Random no. table
In control group
The researcher opened the envelope at the time of interaction

FIGURE 4: Pictorial representation of randomization process (sequentially numbered opaque sealed envelopes), SNOSE

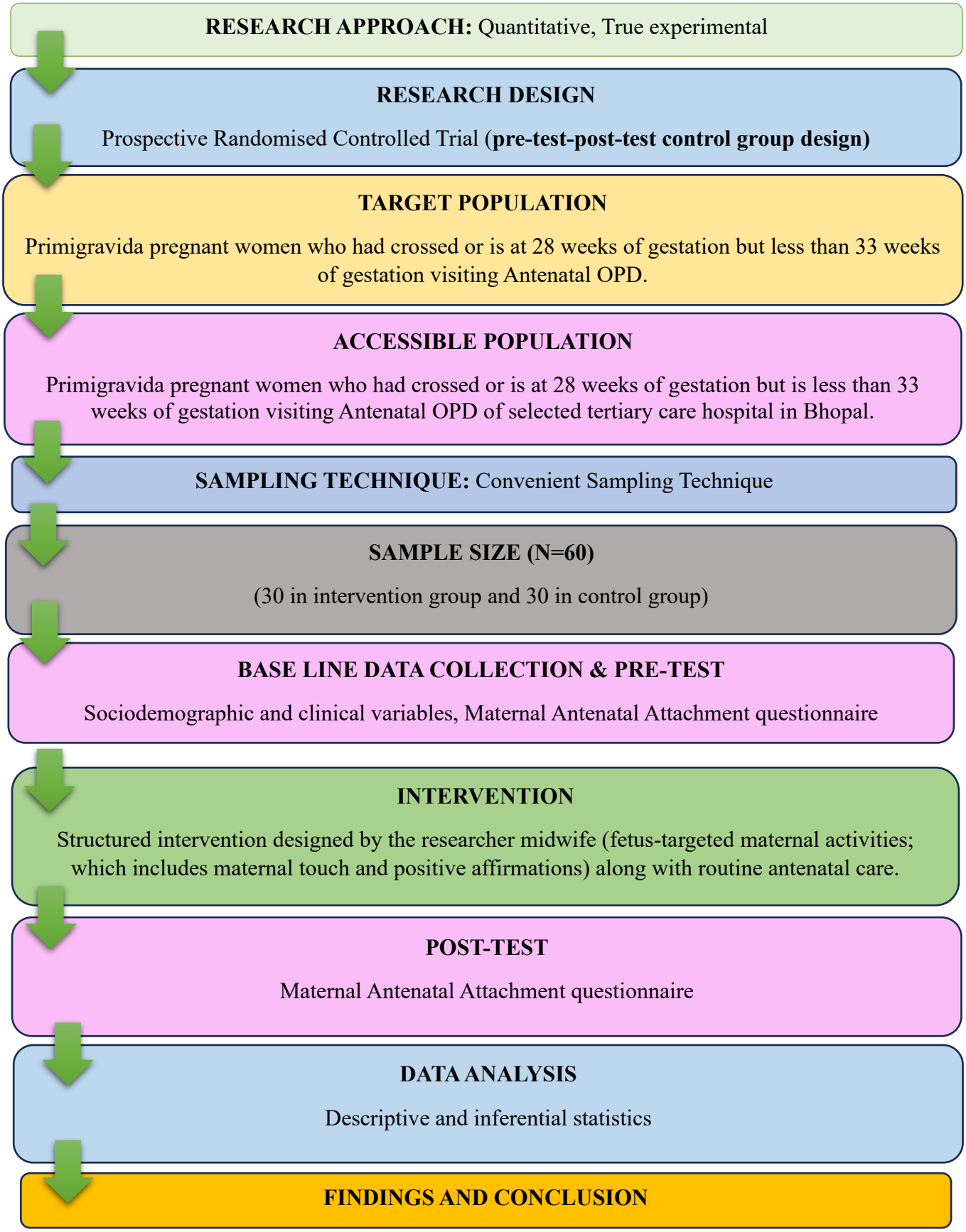
RESEARCH APPROACH: Quantitative, True experimental
RESEARCH DESIGN
Prospective Randomised Controlled Trial (pre-test-post-test control group design)
TARGET POPULATION
Primigravida pregnant women who had crossed or is at 28 weeks of gestation but less than 33 weeks of gestation visiting Antenatal OPD.
ACCESSIBLE POPULATION
Primigravida pregnant women who had crossed or is at 28 weeks of gestation but is less than 33 weeks of gestation visiting Antenatal OPD of selected tertiary care hospital in Bhopal.
SAMPLING TECHNIQUE: Convenient Sampling Technique
SAMPLE SIZE (N=60)
(30 in intervention group and 30 in control group)
BASE LINE DATA COLLECTION & PRE-TEST
Sociodemographic and clinical variables, Maternal Antenatal Attachment questionnaire
INTERVENTION
Structured intervention designed by the researcher midwife (fetus-targeted maternal activities; which includes maternal touch and positive affirmations) along with routine antenatal care.
POST-TEST
Maternal Antenatal Attachment questionnaire
DATA ANALYSIS
Descriptive and inferential statistics
FINDINGS AND CONCLUSION

FIGURE 5: Schematic presentation of Research Approach

Variables under study

Independent Variable: The condition or characteristic the researcher manipulates or control in an attempt to ascertain their relationship to the observed phenomena. In the present study the independent variable is **fetus targeted maternal activities**.

Dependent Variable: The condition or characteristic that appear, disappear or change as the researcher introduces, removes or changes the independent variable. In the present study, the dependent variable is **feto-maternal attachment**.

Research setting

The study was conducted in Antenatal OPD of selected tertiary care hospital in Central India, AIIMS Bhopal, India.

AIIMS Bhopal is a tertiary level medical college hospital with 960 beds. The Clinical services of the OBG department are delivered as Emergency services (24x7), Routine OPD services for general Obstetrics and Gynaecology health consultations, Family Planning counselling & services, Special Clinic services for specific focus areas such as High Risk Pregnancy, Gynaecologic Oncology, Infertility & Minimal Access Gynaecologic surgery, Adolescent Gynaecologic services, and Urogynaecology: IPD services in dedicated wards for Antenatal, Postnatal, Gynaecology, Obstetric HDU, and ICU; Operative services in Major OT, Emergency OT & Minor OT. In addition, the department provides Telemedicine consultation services as part of tripartite collaboration with NHM-MP, average monthly census.

This setting was chosen due to their accessibility and the presence of a diverse population of pregnant women, providing a representative sample for the study. The setting allowed for effective implementation of structured intervention designed by the researcher midwife and

data collection from participants meeting the inclusion criteria with administrative approval and cooperation for the study.

Population

Population refers to the entire population in which the researcher is interested and to which he or she would wish to make generalization of the study results.

1) **Target Population:** Primigravida pregnant women who has crossed or is at 28 weeks of gestation but less than 33 weeks of gestation visiting Antenatal OPD.
2) **Accessible Population:** Primigravida pregnant women who has crossed or is at 28 weeks of gestation but is less than 33 weeks of gestation visiting Antenatal OPD of selected tertiary care hospital in Bhopal.

Sample

The sample for this study consisted of: Primigravida pregnant women who has crossed or is at 28 weeks of gestation but is less than 33 weeks of gestation with the normal course of pregnancy attending and available in antenatal OPD of AIIMS Bhopal at the time of data collection and who met the inclusion criteria.

Inclusion Criteria:

Include Primigravida women who is:

- Willing to participate and above the age of 18 years
- Available at the time of data collection and at, or crossed 28 weeks gestation with normal course of pregnancy.
- Possessing a smart phone

Exclusion Criteria:

Include Pregnant women who:

- Has medical & surgical complication which might complicate the pregnancy and is diagnosed with any psychological disorder.
- Have crossed 32 weeks+6 days of gestation.

Sample Size

Sample size for the present study was calculated using OpenEpi Software based on results of previous studies. The parameters assumed in sample size calculation is as follows;

Confidence Interval (2-sided) = 95%, Power = 80%, Ratio of sample size (Group 2/Group1) =1

Mean and Standard Deviation (Group 1) = 1.34 +0.63, Mean and Standard Deviation (Group 2) = 0.74+0.59.

Calculated Sample size was 34 (17 in experimental group & 17 in control group)

Attrition (non-response) rate set for the present study is 10%

Sample size including non-response rate is 34 (17 in each group)

Researcher rounded off the sample size to 60 (30 in each group)

Sampling technique

The sampling technique used in this study was convenient sampling, followed by randomization with a 1:1 allocation. To ensure unbiased group assignment, sequentially numbered opaque sealed envelopes (SNOSE) were employed for the randomization process.

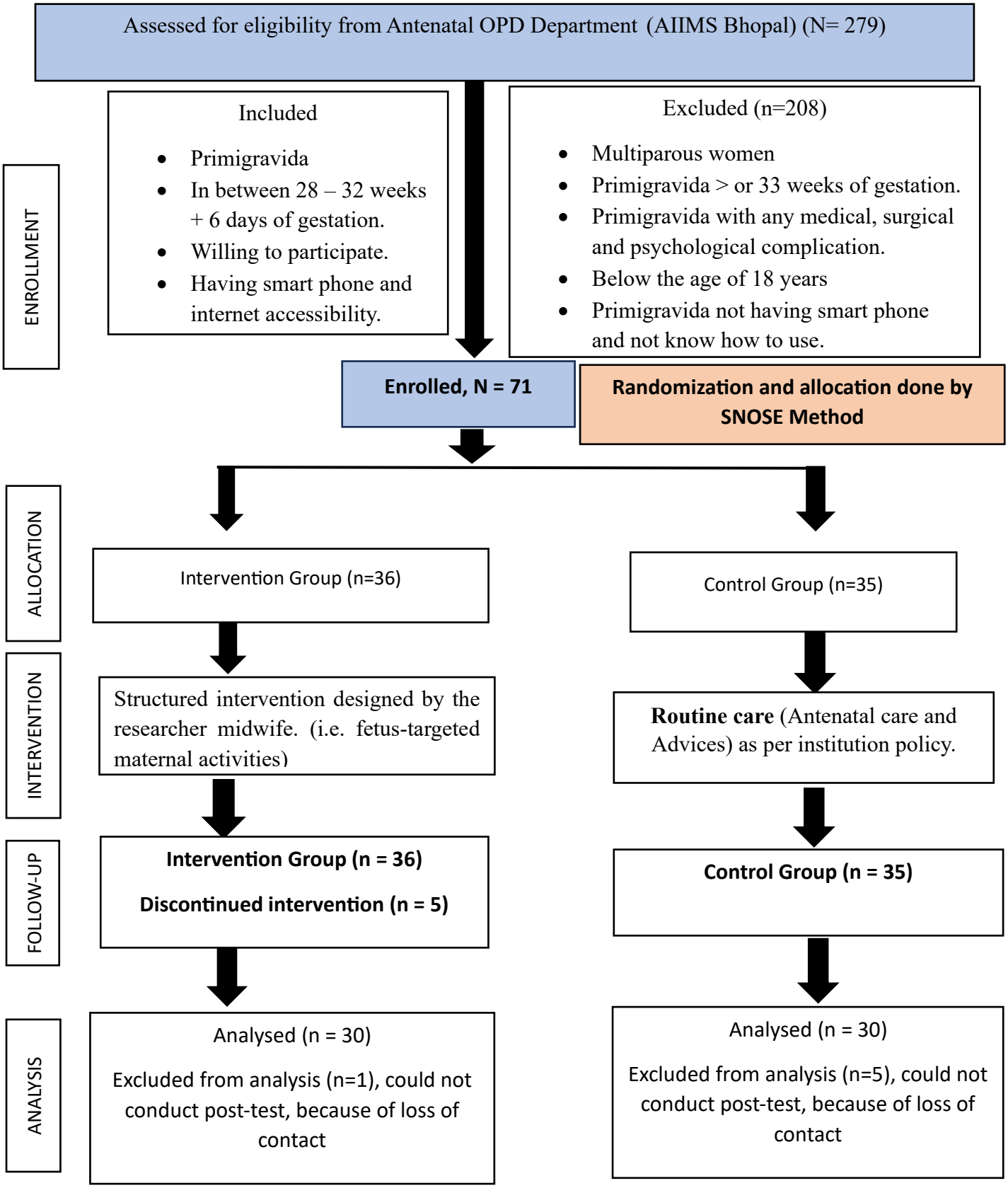
Assessed for eligibility from Antenatal OPD Department (AIIMS Bhopal) (N= 279)
ENROLLMENT
Included
Primigravida
In between 28 – 32 weeks + 6 days of gestation.
Willing to participate.
Having smart phone and internet accessibility.
Excluded (n=208)
Multiparous women
Primigravida > or 33 weeks of gestation.
Primigravida with any medical, surgical and psychological complication.
Below the age of 18 years
Primigravida not having smart phone and not know how to use.
Enrolled, N = 71
Randomization and allocation done by SNOSE Method
ALLOCATION
Intervention Group (n=36)
Control Group (n=35)
INTERVENTION
Structured intervention designed by the researcher midwife. (i.e. fetus-targeted maternal activities)
Routine care (Antenatal care and Advices) as per institution policy.
FOLLOW-UP
Intervention Group (n = 36)
Discontinued intervention (n = 5)
Control Group (n = 35)
ANALYSIS
Analysed (n = 30)
Excluded from analysis (n=1), could not conduct post-test, because of loss of contact
Analysed (n = 30)
Excluded from analysis (n=5), could not conduct post-test, because of loss of contact

FIGURE 6: CONSORT flow diagram of main study.

Data collection tools and Instruments

Data collection is a critical component of research as it provides the essential information required to answer the research questions. The accuracy and quality of the data collected are largely determined by the tools used for gathering the data. In this study, the data collection tools were designed and developed to align with the study objectives, ensuring they were suitable and relevant for assessing the effects of fetus targeted maternal activities on feto-maternal attachment among pregnant women.

Development of the Tool

The data collection tools for this study were carefully designed by the researcher, drawing from existing literature and expert advice to ensure that the tools accurately captured relevant information regarding the feto-maternal attachment of pregnant women and impact of fetus targeted maternal activities. The following steps were involved in the development process:

1.Extensive Review of Literature: A thorough review of existing literature was conducted, focusing on studies related to feto-maternal attachment, role of maternal touch, and the role of positive affirmation sentences in improving psychological well-being during pregnancy. This literature review helped identify the key variables to measure and guided the design of the data collection instruments.

2.Drafting the Research Instrument: The initial version of the research tools was developed, including questions to assess the sociodemographic characteristics of the participants and their feto-maternal attachment before and after the intervention. The tools were designed to capture both the baseline data of pregnancy and feto-maternal attachment and the impact of fetus targeted maternal activities on feto-maternal attachment.

3.Content Validation: After developing the first draft, the tool was reviewed through consultations with experts in the fields of gynaecology, and AYUSH department. Feedback was solicited from the study's guide, co-guide, and other specialists. The experts provided valuable insights regarding the content, structure, and language of the tool.

4**. Tool modification:** Based on their suggestions, revisions were made to improve the clarity and relevance of the tool. Additionally, a Content Validity Index (CVI) was calculated to assess the content validity of the tool.

5.Tool translation in regional language (Hindi) and consultation with language expert.

6.Reliability Testing

7.Finalizing the Tool: Following consultations and revisions, the final version of the tool was prepared. It was reviewed to ensure it addressed all necessary domains related to the research objectives and was capable of effectively measuring feto-maternal attachment and the impact of fetus targeted maternal activities. The finalized tool was made ready for data collection.

Description of the Tools

The following tools were used in this study to collect relevant data:

It consists of 2 sections:

• Section 1:

o Part A - Demographic variable Performa

o Part B - Clinical variable Performa

• Section 2: Maternal antenatal attachment scale (**Standardised tool and available in Open Domain)**.

Section 1, Part-A Demographic variable Performa: A self-structured questionnaire was used to gather basic sociodemographic information about the participants, such as age, religion, socio economic class, residence, type of diet, type of family, duration of marriage, any social support available, working status of mother, education of mother, if employed, then working hours of mother. This information was essential for understanding the characteristics of the sample population and any potential confounding factors.

Section 1, Part-B Clinical variable Performa: A self-structured questionnaire was used to gather basic clinical information about the participants, such as Gestational age, type of pregnancy, No. of antenatal visits till now, if mother had attended any child Birth preparation classes.

Section 2: Maternal antenatal attachment scale (MAAS): The MAAS questionnaire was the primary instrument used to assess the feto-maternal attachment of the pregnant women. The Maternal Antenatal Attachment Scale (MAAS) is a 19 item self-report questionnaire for the assessment of mother-to-infant attachment during the antenatal period.

The MAAS is used to assess the quality of the mother-fetus relationship in terms of overt (i.e., conscious) thoughts, feelings, attitudes and behaviours of the mother towards the fetus.

It yields an overall score of antenatal attachment as well as scores across two subscales: “Quality of Attachment (QA)” (11 items) and “Intensity of Preoccupation (IP)” (8 items). The QA subscale measures the quality of the mother’s affective experience towards the unborn child (such as feelings of closeness and tenderness versus feelings of detachment and distance or irritation). The IP subscale assesses the strength of feelings toward the unborn child and the amount of time thinking or dreaming about and talking to the fetus. The MAAS was chosen due to its proven reliability and validity in assessing feto-maternal attachment in pregnant women.

Validity and Reliability of the Tools

Validity

The validity of the tools used in this study was ensured through both face and content validity assessments. Face validity was established through discussions with the guide and co-guide to ensure the tool's relevance and clarity. Content validity was evaluated using the Scale Content Validity Index (SCVI) based on the average method and the universal agreement (UA) method. The background proforma, a self-structured tool, was developed after reviewing the literature and reviewed by a panel of seven experts in fields such as Nursing, Obstetrics & Gynaecology, and AYUSH Department. Expert feedback was incorporated to assess the relevance of each item. The tool was also translated into Hindi and back-translated into English by a bilingual expert to ensure linguistic accuracy. Based on the feedback, modifications were made, and the final tool was confirmed with the guide and co-guide. The Scale Content Validity Index (SCVI) for the final tools was as follows: SCVI (average method) = 0.98, SCVI (UA method) = 0.99, and for the Clinical Profile, SCVI (average method) = 0.99, SCVI (UA method) = 0.92. The MAAS scale used in this study is a standardized tool, and the Cronbach's alpha for the MAAS was reported at 0.79, indicating high internal consistency.

Reliability

The reliability of the tools was assessed by applying Cronbach's alpha to a sample of 10 pregnant women. The results showed that the tools demonstrated acceptable to very good reliability. The MAAS tool had a Cronbach's alpha of 0.79, indicating strong internal consistency. The reliability of the data collection instruments was thus confirmed, ensuring their ability to yield consistent results across different samples and settings. The MAAS tool was reviewed for content validity by ten experts in relevant fields, and its language was

validated by Hindi language experts. The tool demonstrated a high internal consistency of **0.90**, confirming its reliability.

DATA COLLECTION TOOLS & TECHNIQUE:

TOOL	**PURPOSE**	**DATA COLLECTION TECHNIQUE**
1.Socio-demographic data 2. Clinical data	To collect background data To collect history of present pregnancy	By Interview technique (In Antenatal OPD at AIIMS Bhopal)
3.Maternal Antenatal Attachment Scale.	To collect data regarding feto-maternal attachment.	Pre-test data was collected: by Face-to-face Interview Technique (In Antenatal OPD at AIIMS Bhopal): From all 60 pregnant primigravida mothers Post-test was collected: **Telephonic calls:** from 38 pregnant primigravida mothers. **Video calls:** from 2 pregnant primigravida mothers. **Face-to-face Interview Technique** (In Antenatal OPD at AIIMS Bhopal): 13 pregnant primigravida mothers. **Face-to-face Interview Technique** (by home visit, due to near residential area): 7 pregnant primigravida mothers

TABLE No. 1: Summary of data collection tools with techniques.

DESCRIPTION OF INTERVENTION PROTOCOL (DETAILS OF THE PROTOCOL -ANNEXURE 6)

Fetus targeted maternal activities:

It is structured interventions designed by the researcher midwife which involve the following activities: 1. Maternal touch to sense the fetal movements in the womb by touching the abdomen at three areas that is Upper abdomen (10 minutes), Left and Right lateral side (10 minutes), Lower abdomen (10 minutes) for 30 minutes a day.

2.Verbalization of 15 Positive affirmations sentences (5 for each area of touch) focusing on the fetal well-being and positive health outcome after the delivery.

Name of Intervention Protocol: structured intervention designed by the researcher midwife.

Intervention will include:

Total time period for the intervention: **21 days**

Total duration of intervention is **30 mins.**

Frequency of the intervention**: Once (Before bed).**

Instructions:

- Before starting the intervention find a comfortable position to perform (sit with back support on chair, couch, or bed)
- Take a deep Breath.
- Relax your body – close your eyes if you are comfortable doing so or you can keep your eyes open, place your both hand on your abdomen.

Step 1. For first 10 mins put your both hands on the upper part of abdomen and feel for fetal movements and speak 5 following positive affirmation sentences to the fetus:

i. I am dedicated and loving mother.
ii. I love my baby unconditionally.
iii. I will have a strong and healthy baby.
iv. I love my baby and my baby loves me
v. My baby is safe and secure.

Step 2. For second 10 mins put your both hands on the Right and left lateral sides of abdomen and feel the fetal movements and speak 5 following positive affirmation sentences to the fetus:

i. My baby is growing strong and healthy.
ii. I will make the right decisions for my baby.
iii. I know how to take care of my baby.
iv. I will breast feed my baby.
v. I eat nourishing healthy foods so help my baby grow.

Step 3. For the last 10 mins put your both hands on the lower part of your abdomen and feel the fetal movements and speak following 5 positive affirmation sentences to the fetus:

i. I am accepting my pregnancy experiences.
ii. My baby will be born healthy and at the perfect time.
iii. My baby will be born without any complications.
iv. I am capable of delivering this baby.
v. I welcome my baby with love and happiness.

Structured Compliance Checklist:

Mother will record the timing and will tick mark the provided checklist.

Day	Timing
Day 1	☐
Day 2	☐
Day 3	☐
Day 4	☐
Day 5	☐
Day 6	☐
Day 7	☐

Day 8	☐
Day 9	☐
Day 10	☐
Day 11	☐
Day 12	☐
Day 13	☐
Day 14	☐
Day 15	☐
Day 16	☐
Day 17	☐
Day 18	☐
Day 19	☐
Day 20	☐
Day 21	☐

Structured Reminder Protocol:

For checking adherence to the intervention, investigator had made sure to be in contact with the participant via Telephonic call, WhatsApp Audio message, WhatsApp Text message. The researcher had created common WhatsApp group of the participants in the intervention group, via this group researcher used to contact the participants.

Ethical Considerations

The research proposal was submitted to the institutional ethics committee, and approval was granted to conduct the study. Ethical approval for the study was granted by the Institutional Human Ethical Committee-Student Research at AIIMS Bhopal (Ref No.: IHEC/SR/2024/105, dated 1st February 2024). Written informed consent was obtained from all participants, ensuring they were fully aware of the study's purpose, objectives, and potential benefits. Confidentiality of participants was maintained throughout the study.

Pilot Study

After obtaining ethical approval, a pilot study was conducted to assess the feasibility of the main study. This pilot study was carried out among 10 participants, which represented 10% of the intended sample size, from 9th July 2024 to 8th August 2024. The study was conducted in Antenatal OPD, AIIMS Bhopal. The pilot study followed the same objectives, data collection procedures, and analysis techniques as outlined in the Letter of Permission (LOP) for the main study. The average time taken by participants to complete the questionnaires was between 25-30 minutes. The pilot study provided valuable insights into the feasibility of the larger study and highlighted potential challenges. Based on the results, the pilot study confirmed that the main study could proceed as planned

Data Collection Procedure

Main study data was collected between 19th August 2024 to 30th September 2024 in antenatal OPD of AIIMS Bhopal. For my study the data collection procedure is depicted in figure 7.

<table>
<tr><td colspan="5">Step 1- Obtained administrative approval
Step 2- Screening using inclusion and exclusion criteria
Step 3- Full disclosure regarding the study (PIS is provided)
Step 4- Informed consent was taken from the pregnant women
Step 5-Pregnant women randomly allocated in two groups using SNOSE</td></tr>
<tr><td>Group</td><td colspan="3">OPD VISIT DAY (Day 1)</td><td>Reminder (Day 2 to Day 20)</td><td>Follow Up</td></tr>
<tr><td rowspan="2">Experimental group</td><td rowspan="2">Recruitment</td><td rowspan="2">Pre-test</td><td rowspan="2">Recruitment
+
(Pre-test)
+
(Demonstration of the intervention)
+
(Distribution of handouts containing positive affirmations)
+
Checklist given to maintain record (for adherence to the intervention)</td><td>Twice in a week</td><td>Alternate Days</td><td>Day 21</td></tr>
<tr><td>Telephonic call</td><td>Voice note/ message</td><td>Post-test</td></tr>
<tr><td>Control Group</td><td colspan="3">Recruitment + Pre-test</td><td></td><td>Post-test</td></tr>
</table>

FIGURE 7: Schematic representation of the data collection procedure.

Data Analysis Plan

Data was analysed using both **descriptive** and **inferential statistics**. Descriptive statistics such as percentages and frequencies were used to summarize the data, while inferential statistics, including the **Wilcoxon Signed Rank Test** and **Mann Whitney U Test**, were used to analysed pre and post-test differences. Data analysis was carried out using **MS Excel** and **SPSS** software version 26.0.

Summary

This chapter outlined the research methodology for the study on the effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women. It covered the research design, sample selection, data collection tools, ethical considerations, and the data analysis plan. The next chapter will present the analysis and interpretation of the data.

CHAPTER IV

RESULTS

This chapter deals with the analysis and interpretation of the data gathered to evaluate the impact of fetus targeted maternal activities on feto-maternal attachment encompassing data from 60 pregnant women, with 30 in the interventional group and 30 in the control group.

Descriptive and inferential statistics were employed to tabulate, scrutinize, and interpret the acquired data in accordance with the study's overarching goals. The data collected by the researcher underwent meticulous analysis utilizing MS Excel 365 and IBM SPSS Statistics (Version 26), aligning with the predefined objectives of the study.

Organization and presentation of the findings-The presentation of the study findings is structured as follows:

Section I: Frequency and percentage distribution and homogeneity testing of Socio-demographic Variables.

Section II: Frequency and percentage distribution and homogeneity testing of clinical Variables.

Section III: Description of feto maternal attachment among pregnant women.

Section IV: Effectiveness of structure intervention designed by researcher midwife.

Section V: Association of pre-intervention maternal antenatal attachment score with selected socio-demographic variables.

SECTION I

Frequency and percentage distribution and homogeneity testing of Socio-demographic Variables.

This section deals with the frequency and percentage distribution and homogeneity testing of socio-demographic variables of study participants in experimental group and control group.

Table No. 2: Frequency and percentage distribution and homogeneity testing of socio-demographic variables in experimental group and control group.

(N = 60)

VARIABLE	CATEGORIES	Experimental group (n=30)		control Group (n=30)		Fisher Exact*/Chi-square (p value)
		f	%	f	%	
Age (In Years)	18-25	12	40	13	43	0.79*
	26-33	18	60	17	57	
	>33	0	0	0	0	
RELIGION	Hindu	27	90	26	87	0.43*
	Muslim	2	7	4	13	
	Christian	1	3	0	0	
	Other (Specify)	0	0	0	0	
Socio economic class	Upper(I)	1	3	2	7	0.36*
	Upper Middle (II)	18	60	12	40	
	Lower Middle (III)	11	37	15	50	

	Upper Lower (IV)	0	0	1	3	
	Lower (V)	0	0	0	0	
Residence	Rural	1	3	2	7	0.83*
	Urban	20	67	19	63	
	Semi-Urban	9	30	9	30	
Type of Diet	Vegetarian	17	57	11	37	0.12
	Non-vegetarian	13	43	19	63	
Type of Family	Nuclear	8	27	7	23	0.87*
	Joint	20	67	20	67	
	Extended	2	6	3	10	
Duration of Marriage	<1 year	18	60	22	74	0.25*
	1-3 years	12	40	7	23	
	> 3 years	0	0	1	3	
Any Social support available at home	Mother-in-law	21	70	18	60	0.56*
	Sister-in-law	1	3	4	13	
	Mother	1	3	1	3	
	Spouse	7	24	7	24	
	Any other (Specify)	0	0	0	0	
Education of Mother	Secondary and lower education	12	40	18	60	0.30
	Graduation and above	18	60	12	40	
Occupation of Mother	Housewife	17	57	16	53	0.47
	Services	13	43	14	47	
If employed, then how many hours is spent at work? (n= 27)	<8 hours	7	23	10	34	0.61*
	>8 hours	6	20	4	13	

Table 2 presents the baseline characteristics of socio-demographic variables for participants in both the intervention and control groups. The chi-square values and corresponding p-values assess the homogeneity of characteristics between the intervention and control groups. The p-value greater than 0.05 for all the variables indicate no significant difference between the groups affirming that, at the 0.05 level of significance, the baseline characteristics of both groups were comparable.

Majority of the women in both experiment group (60%) and in control group (57%) belongs to the age category of 26-33 years of age group. 90% pregnant women in experimental group and 87% pregnant women in control group are Hindu in religion. 60% women in experimental group belongs to upper middle socio-economic status and 50% women in control group belongs to the lower middle socio-economic status. 67% in experimental group and 63% in control group resides in the urban area. 57% women from experimental group have vegetarian type of diet and 63% women from the control group have non-vegetarian type of diet. Both in experimental and control group (67%) of pregnant women belongs to joint type of family. Mostly mothers (60%) in experimental group and (74%) in control group are married with less than one year of duration. 70% in experimental group and 60% in control group are having mother-in-law as a social support person available at home.

60% mother in experimental group have education of graduation and above. Mostly mothers were housewives (57%) in experimental group and (53%) in control group. Among working (i.e. 43%) in experimental group, 23% out of this have <8 working hours. And in control group out of total 47%, 34% are having <8 working hours.

SECTION II

Frequency and percentage distribution and homogeneity testing of clinical Variables.

This section deals with the frequency and percentage distribution and homogeneity testing of clinical variables of study participants in experimental group and control group.

Table No. 3: Frequency and percentage distribution and homogeneity testing of clinical variables in experimental group and control group. (N = 60)

VARIABLES	CATEGORIES	Experimental group (n=30)		control Group (n=30)		Fisher Exact*/Chi-square (p value)
		f	%	f	%	
Gestation Age	28-30	19	63	22	73	0.87
	31-33	11	37	8	27	
Type of pregnancy	Planned	12	40	7	23	0.16
	Unplanned	18	60	23	77	
NO. Of Antenatal Visit (till now)	<3	12	40	14	47	0.60*
	3-6	18	60	16	53	
	>6	0	0	0	0	
Attended any child Birth classes	No	30	100	30	100	is Constant
	Yes	0	0	0	0	

Table 3 presents baseline characteristics of clinical variables for participants in both the intervention and control groups. By applying chi-square test, the corresponding p-values assess the homogeneity of characteristics between the intervention and control groups. The p-value greater than 0.05 for all the variables indicate no significant difference between the groups affirming that, at the 0.05 level of significance, the baseline characteristics of both groups were comparable. Majority of the women in both experiment group (60%) and in control group (77%) have unplanned pregnancy. religion. 60% women in experimental group belongs to upper middle.

SECTION III

Description of feto maternal attachment among pregnant women.

This section deals with the descriptive statistics among participants in Experimental group and Control group for description of feto-maternal attachment among pregnant women before and after the intervention.

Median And Standard Deviation of Feto-Maternal Attachment among Both Experimental and Control Groups Before and After Intervention.

Table No. 4: Median And Standard Deviation of Feto-Maternal Attachment among Both Experimental and Control Groups Before and After Intervention. (N = 60)

Group	PREINTERVENTIONAL (Median & SD)	POSTINTERVENTIONAL (Median & SD)
Experimental	67.50 ± 7.02	82.50 ± 3.89
Control	66.00 ± 7.72	65.00 ± 8.53

(SD: Standard Deviation**)**

By comparing median for feto-maternal attachment before and after intervention among both groups it is evident that the intervention: structured intervention designed by the researcher midwife (which is fetus-targeted maternal activities) was effective among the primigravida mothers and had a significant change in feto-maternal attachment (15 ± 3.13) in the Intervention Group.

Section IV

Effectiveness of structured intervention designed by researcher midwife.

This section deals with the descriptive and inferential (Mann-Whitney U Test and Wilcoxon Signed-Rank test) statistics among participants in Experimental group and Control group on Effectiveness of structured intervention designed by the researcher midwife.

A. **Within Group comparison of feto-maternal attachment among participants in Experimental group and Control Group (by using Wilcoxon Signed-Rank test)**
B. **Between Group comparison of feto-maternal attachment among participants in Experimental group and Control Group (by using Mann-Whitney U Test)**

Hypothesis tested is:

H01: There is no significant difference in feto-maternal attachment before and after the intervention at 0.05 level of significance.

Table No. 5: Within Group comparison of feto-maternal attachment among participants in Experimental group and Control Group (by using Wilcoxon Signed-Rank test)

(N = 60)

Statistics	PAIR- Pre-intervention Attachment of Experimental & Post-interventional attachment of Experimental Group (N=30)	PAIR-Pre-intervention Attachment of control & post-interventional attachment of control Group (N=30)
P Value	**0.000 (S)**	0.955 (NS)
Test Statistic (W)	465.000	103.5
Positive differences	30	11
Negative Differences	0	9
Number of Ties	0	10

(S: Significant**, NS:** Not Significant**)**

There is significant difference in the Pre-intervention attachment score of experimental group and post-interventional attachment score of experimental group. (p = 0.000) at level of significance 0.05. It is evident that the intervention was effective among the primigravida mothers and had a significant change in feto-maternal attachment.

Table No. 6: Between Group comparison of feto-maternal attachment among participants in Experimental group and Control Group (by using Mann-Whitney U Test)

(N = 60)

PAIR	Mann-Whitney U Test	P value	Mean ranks
Pre-intervention Attachment of Experimental & Control Group	488.5	0.56(NS)	E = 31.78 C = 29.22
Post-intervention Attachment of Experimental & Control Group	888.0	**0.000(S)**	E = 45.10 C =15.90

(S: Significant**, NS:** Not Significant, E: Experiment group, C: Control group**)**

There is significant difference in the post-intervention attachment score of experimental group and control group. (p = 0.000) at level of significance 0.05. It is evident that the intervention was effective among the primigravida mothers and had a significant change in feto-maternal attachment.

Hence, we can conclude that the intervention {structured intervention designed by the researcher midwife (which is fetus targeted maternal activities; which includes maternal touch and positive affirmation sentences)} was effective and H0 is rejected and alternative hypothesis is accepted: There will be significant difference in feto-maternal attachment before and after the intervention at 0.05 level of significance.

SECTION V

Association of pre-intervention maternal antenatal attachment score with selected socio-demographic variables.

This section deals with the association of pre-interventional feto-maternal attachment score with selected socio-demographic variables among participants in Experimental group and control group using Chi Square test of statistics.

A. Association of selected socio-demographic variables with pre-interventional feto-maternal attachment score among pregnant primigravida women.

Hypothesis tested is:

H02: There is no significant association between feto-maternal attachment and selected socio demographic variables at 0.05 level of significance.

Table No. 7: Association of selected socio-demographic variables with pre-interventional feto-maternal attachment score among pregnant primigravida women. (N = 60)

SOCIODEMOGRAPHIC VARIABLES		Maternal antenatal attachment score		Chi square value	df	P value
		Moderate level of Attachment (46-70)	High level of attachment (71-95)			
Age	18-25	15	10	0.19	1	0.66(NS)
	26-33	19	16			
Religion	Hindu	29	24		2	0.21(NS)
	Muslim	5	1			
	Christian	0	1			
Socio-economic status	Upper(I)	0	3	17.84	3	**0.00 (S)**
	Upper Middle (II)	11	19			
	Lower Middle (III)	22	4			
	Upper Lower (IV)	1	0			
Residence	Rural	3	0	15.16	2	**0.001(S)**
	Urban	15	24			
	Semi-Urban	16	2			
Type of diet	Vegetarian	14	14	0.95	1	0.33(NS)

	Non-vegetarian	20	12			
Type of family	Nuclear	11	4	4.17	2	0.12(NS)
	Joint	19	21			
	Extended	4	1			
Duration of marriage	<1 year	25	15	2.96	2	0.23(NS)
	1-3 year	8	11			
	> 3 years	1	0			
Social support available	Mother-in-law	18	21	6.62	3	0.85(NS)
	Sister-in-law	3	2			
	Mother	1	1			
	Spouse	12	2			
Education of mother	Secondary and lower education	23	7	17.6	1	**0.001(S)**
	Graduation and above	10	20			
Occupation of mother	Housewife	14	19	8.8	1	0.12(NS)
	Services	14	13			
If employed, then how many hours are spent at work? (n = 27)	<8 hours	7	10	2.59	2	0.27(NS)
	>8 hours	7	3			

(df: Degree of freedom, **S:** Significant**, NS:** Not Significant**)**

Data of chi-square value is showing significant association of pre-intervention feto-maternal attachment with Socio-economic Status, Residence and Education of the mother. Hence H01 is rejected and alternative hypothesis is accepted: There is significant association between feto-maternal attachment and selected socio demographic variables at 0.05 level of significance.

Summary:

This chapter discussed the results or findings of the study with their analysis and interpretation according to research objectives. The results of the study were organised into different sections like information on sample characteristics, comparison of feto-maternal attachment and association of feto-maternal attachment with sociodemographic variables. The next and last chapter dealt with the discussion of present study findings with other study findings.

CHAPTER V

DISCUSSION

Introduction

The present study was intended to measure the effect fetus targeted maternal activities on feto-maternal attachment among pregnant women of selected tertiary care hospitals of Bhopal. A randomized controlled trial, pretest post-test prospective randomized controlled trial was aptly used to execute intend of the study. Sample size consist of 60 pregnant women i.e., 30 pregnant women in intervention group and 30 in control group. Baseline assessment along with details about demographic variables was done. **S**tructured intervention designed by the researcher midwife was implemented for intervention group pregnant women. Post test was conducted after completion three weeks of intervention.

This chapter dealt with the summary of the study, highlights of major finding, implication, strength, limitation and recommendation for further studies.

Objectives of the Study

1. To assess the feto-maternal attachment among pregnant women.

2.To determine the effect of midwife led fetus targeted maternal activities on feto-maternal attachment among pregnant women.

3.To find out the association between feto-maternal attachment and selected socio demographic variables among pregnant women.

Major findings of the study

Majority of the women in both experiment group (60%) and in control group (57%) belongs to the age category of 26-33 years of age group. 90% pregnant women in experimental group and 87% pregnant women in control group are Hindu in religion. 60% women in experimental group belongs to upper middle socio-economic status and 50% women in control group belongs to the lower middle socio-economic status. 67% in experimental group and 63% in control group resides in the urban area. 57% women from experimental group have vegetarian type of diet and 63% women from the control group have non-vegetarian type of diet. Both in experimental and control group (67%) of pregnant women belongs to joint type of family. Mostly mothers (60%) in experimental group and (74%) in control group are married with less than one year of duration. 70% in experimental group and 60% in control group are having mother-in-law as a social support person available at home.

60% mother in experimental group have education of graduation and above. Mostly mothers were housewives (57%) in experimental group and (53%) in control group. Among working (i.e. 43%) in experimental group, 23% out of this have <8 working hours. And in control group out of total 47%, 34% are having <8 working hours.

13 participants (43%) had a high level of attachment, with a mean score of 74.69 ± 2.7 in experimental group and 13 participants (43%) also showed a high level of attachment, with a mean score of 74.62 ± 2.2 in control group before the intervention was given. After the intervention, 100% of participants in the experimental group (30 participants) achieved a high level of attachment with a significantly higher mean score of 83.53 ± 3.9 and in the control group, only 14 participants (47%) had a high level of attachment with a mean score of 75.0 ± 2.8.

(p value 0.00) for the pair Pre-intervention Attachment of Experimental & Post-interventional attachment of Experimental Group suggests that intervention had a significant impact on the results. (p value 0.955) for the pair Pre-intervention Attachment of control & post-interventional attachment of control Group is not statistically significant.

Pre-Intervention Attachment (p = 0.56) which is not significant therefore Before the intervention, the attachment levels between the experimental group and the control group were not significantly different. Post-Intervention Attachment (p = 0.000) which is significant therefore it suggests that the attachment levels between the two groups showed a highly significant difference after the intervention is given.

p value for residence is (p = 0.03), education of mother is (p = 0.04) for experimental group and for socio economic status (p = 0.003), for residence (p = 0.015), for education of mother (p = 0.044), these all values denote association of feto- maternal attachment with residence, education of the mother, socio economic status of the mother. For all other socio-demographic variables the p vale is >0.05 which shows that they do not have association with feto-maternal attachment in my study.

Discussion of the findings

Section I: Description of Socio demographic characteristics

The overall analysis of the demographic characteristics of primigravida women was done to find out the total number of participants in each category of the demographic variables.

In the category of age, 60% in experimental group and 57% in control group of primigravida pregnant women were in the age group of 26-33 years. For education majority 60% in experimental group and 40 % in control group have done up to graduation and higher studies. Majority of the mothers 57% in experimental group and 53% in control group are housewife.

Similar findings are observed in following studies, in a study to assess the effect of fetal movement count in prenatal attachment and maternal worries in India, shows 56% of the primimothers were in the age group of 23-27 years in experimental group and 50 % in the age group of 18-22 years in control group. This shows similar range of primigravida women age with the present study.[27]

In another study to assess the prevalence of minor ailments among primigravida mothers in Delhi shows 43% in the age group of 18-23 years, majority 40% education up to higher secondary education, 93% were housewife.[28]

Section II: Related to the effect of nursing intervention on feto-maternal attachment.

Pre-Intervention Attachment ($p = 0.56$) which is not significant therefore Before the intervention, the attachment levels between the experimental group and the control group were not significantly different. Post-Intervention Attachment ($p = 0.000$) which is significant.

Similar findings are shown in a study in which the effect of a music intervention during pregnancy on maternal well-being and mother-infant bonding is carried out, in this study, the results shows, Bonferroni corrected post-hoc comparisons revealed a significant difference between the singing and the control group ($p = 0.002$).[29]

In another study where nursing intervention program using abdominal palpation of Leopold's manoeuvres on maternal-fetal attachment was assessed and after the intervention programs, the PAI score in the intervention group was raised significantly at the 32nd, 34th, and 36th weeks' gestation compared to baseline ($P < 0.01$).[4]. This finding is similar to the findings of my study in which (p value 0.00) for the pair Pre-intervention Attachment of Experimental & Post-interventional attachment of Experimental Group suggests that intervention had a significant impact on the results.

In a study in which the influence of maternal singing on well-being, post-partum depression and bonding is assessed it found that the participants of the intervention group showed a significant reduction of cortisol ($p = .023$) and an improvement of attachment and mood from start to end of the intervention session (all $p \leq .008$).[26] which is similar to our findings of the study in which the fetus targeted maternal activities have significantly increase the feto-maternal attachment in the experimental group.

Strengths of the study:

The study utilized a randomized controlled trial (RCT) design, which is considered the gold standard for evaluating the effectiveness of interventions. This design helps minimizing bias and establishing causality.

The study was an overlooked area which is feto-maternal attachment and the interventions was designed by the researched midwife to see the effectiveness of the intervention, which is not carried out earlier in our country, India.

The study specifically examines a Structured intervention designed by the researcher midwife, highlighting the role of nurses in improving feto-maternal attachment which is a relatively under-researched area.

The intervention and control groups were homogenous in terms of sociodemographic variables, reducing the potential of confounding factors.

Structured intervention designed by the researcher midwife is an accessible, safe, cost-effective, and non-invasive approach intervention that can be easily taught and implemented, making it scalable for wider use during antenatal period.

Limitation of the study

Despite the positive result, the study has its limitation and confined to few facets as enlisted below:

The study was conducted in selected tertiary care hospitals in Bhopal, which may limit the applicability of the results to other regions or different healthcare settings.

The follow-up was limited to antenatal period, potentially missing long-term effects of the intervention.

Implications

The propositions of the study can be reflected underneath four comprehensive headers

- Nursing Practice/Midwife Practice
- Advanced Nursing Practice/clinical Nurse
- Nursing Administration
- Nursing Education
- Nursing Research

Nursing Practice/ Midwife Practice

This study underscores the practical application structured intervention designed by the researcher midwife (fetus targeted maternal activities) in antenatal period. Empowering nurses to educate and support pregnant women in using fetus targeted maternal activities can foster patient autonomy and satisfaction. Moreover, regular monitoring and evaluation of patient outcomes can ensure the continued effectiveness and refinement of these interventions.

Advanced Nursing Practice including Independent Midwifery Practician/ clinical Nurse

Advanced practice nurses, such as nurse practitioners and nurse midwives, can utilize the findings of this study to advocate for the integration of strategies to enhance feto-maternal attachment. These advanced practitioners can lead the implementation of structured intervention designed by the researcher midwife (fetus targeted maternal activities) in antenatal period, and ensure adherence to evidence-based practices.

Nursing Education

The findings of this study highlight the importance of integrating structured interventions (fetus targeted maternal activities) focusing on attachment in antenatal period, into nursing education. By incorporating these techniques into both undergraduate and postgraduate curricula, nursing students can be better prepared to support women during antenatal period. Additionally, emphasizing the psychological and physiological benefits of good maternal attachment can promote a holistic approach to maternity care.

Nursing Research

The study opens up new avenues for further research. Longitudinal studies could explore the long-term effects of structured intervention designed by the researcher midwife (fetus targeted maternal activities) on feto-maternal attachment and also can also assess the level of attachment in the postpartum period. Research can also focus on diverse populations, including multiparous women and high-risk pregnancies, to broaden the applicability of the findings.

Nursing Administration

From an administrative perspective, this study highlights the need for developing and implementing policies that support for feto-maternal attachment. Administrators can facilitate

training programs to ensure that all nursing staff are proficient in guiding and supporting interventions which enhance feto-maternal attachment. Allocating resources for ongoing professional development can help maintain high standards of care. Furthermore, administrative support for research initiatives can foster a culture of continuous improvement and innovation in maternity care.

Recommendations

On the basis of the finding, the following recommendation are offered for future practice and research

1. A Comparative study may be conducted to find the effectiveness of structured intervention designed by the researcher midwife (fetus targeted maternal activities) be done between primigravida and multigravida pregnant women.

2. An intervention study may be carried out to assess the Effectiveness of structured intervention designed by the researcher midwife (fetus targeted maternal activities) on maternal stress, and anxiety during pregnancy.

3. An observational study may be performed to assess the feasibility, usability, and utilization of such technology-based intervention among pregnant women.

4. Longitudinal studies can be undertaken to evaluate the long-term effects of structured intervention designed by the researcher midwife (fetus targeted maternal activities) on feto-maternal attachment, providing a more comprehensive understanding of the benefits and potential risks.

5. An intervention study can be carried out during intrapartum period to assess the effect of positive affirmations as an intervention on pain.

6. Qualitative study can be carried out to collect the information related to maternal behaviour and expectation of mothers and how mothers feel during pregnancy about their bond with the fetus.

7. A study may be carried out to compare the intervention with other strategies for the feto-maternal attachment.

8.Longitudinal studies can be undertaken to evaluate the long-term effects of structured intervention designed by the researcher midwife (fetus targeted maternal activities) on infant and in toddler or adolescent period of the child.

9. An observational study can be carried out to assess the intra partum behaviour of mother towards the baby after implementation of the structured intervention designed by the researcher midwife (fetus targeted maternal activities).

10. An observational study can be carried out to assess the post-partum behaviour of mother towards the baby after implementation of the structured intervention designed by the researcher midwife (fetus targeted maternal activities).

Refection on the Research Study

The researcher had a great opportunity to learn new things as a beginner researcher and to think back on the study that she had conducted. According to the researcher, reflection ought to be a continuous process that is carried out for use as an enduring learning tool in both personal and professional contexts. beginning with the choice of problem statement and ending with the submission of the completed dissertation. Every turning point in this voyage has brought back a wealth of knowledge and memories.

Researcher had never used the Randomised Controlled Trial process before, but she had an experience of quantitative descriptive research. It was interesting to conduct Intervention based study and it taught new methodologies and enhanced the researcher's knowledge.

And the most important aspect of the study is the intervention and outcome of the study, the outcome which is feto-maternal attachment is an overlooked area in today's clinical practice and is not given much importance but actually it is very important and it is also mentioned in ancient history of India (According to the Hindu epic Mahabharata), that how Arjuna's son, Abhimanyu, is said to have learned about a complex battle formation called "Chakravyuha" while still in his mother's womb, by listening to his father Arjuna's explanation to his pregnant wife Subhadra. This story and many other benefits mentioned in garbh Sanskar modules encouraged the researcher to take this study and the researcher enjoyed every bit of information form the mothers about their unborn baby. And the researcher by extensive literature review and with the help of the guide developed the intervention protocol which was again a very important and crucial step of this study and all these steps have increased the understandability and knowledge of the researcher.

Conclusion

Study underscores the significant impact of such interventions in improving feto-maternal attachment. Through rigorous implementation and evaluation, we have demonstrated that Structured intervention designed by the researcher midwife (fetus targeted maternal activities) can positively influence the feto-maternal attachment, improving overall maternal and neonatal well-being and childbirth experience.

The findings of this study emphasize the importance of integrating Structured intervention designed by the researcher midwife (fetus targeted maternal activities) into routine antenatal care, as they offer a safe, cost-effective, and non-invasive approach to increase feto-maternal

attachment. By empowering pregnant women with effective fetus targeted maternal activities and support during antenatal period, nurses can contribute significantly to improving birth experiences and promoting positive maternal and neonatal health outcomes.

Moving forward, further research is warranted to explore the long-term effects and sustainability of Structured intervention designed by the researcher midwife (fetus targeted maternal activities) on maternal and child attachment after birth.

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ANNEXURES

ANNEXURE – 1

Letter seeking permission to conduct the study.

From,
Priya Kumari
1st year M. Sc Nursing (Obstetrics and Gynaecological Nursing) Student
(2023-2025 batch)
Nursing College, AIIMS Bhopal

To,
The Medical Superintendent
AIIMS Bhopal

Subject- Letter seeking permission for conducting Research study at AIIMS Bhopal: Regarding-

Respected Sir,

As a part of the curriculum, myself Priya Kumari, 1st year M. Sc Nursing (Obstetrics and Gynaecological Nursing speciality) student, AIIMS Bhopal conducting a Research study titled **"Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A randomised Controlled Trial".**

The study is approved by the IHEC-SR of AIIMS Bhopal and LOP has been received for the same (Enclosed).

I seek your permission for the data collection for research study (Pilot study and main study) from Antenatal OPD in Obstetrics and Gynecology Department.

Kindly grant permission for the same. I shall be obliged to you.

Submitted for your kind perusal.

Thanking you

Priya Kumari
(Student Investigator)
(+91-9785617430)
priyak.mscnursing23@aiimsbhopal.edu.in

Guide:
Dr. Lily Podder
Associate Professor
Nursing College
AIIMS, Bhopal

Co-Guide:
Mr. Kumarasammy A P
Assistant Professor
Nursing College
AIIMS, Bhopal

Co- Guide:
Prof. Dr. K Pushpalatha
Professor & HOD
Department of Obstetrics and Gynecology
AIIMS, Bhopal

Enclosure-
1. Research Proposal
2. LOP From IHEC-SR, AIIMS Bhopal.

Permitted.
Dean (M&A)

Copy to-
1. HOD, Department of Obstetrics and Gynecology.
2. ANS of Out-patient department (OPD), Department of Obstetrics and Gynecology.

Noted. Ms. Priya Kumari for further proceedings.

ANNEXURE – 2

Tools

SCREENING TOOL

DESCRIPTION OF SCREENING TOOL Code No. [ ]

Screening tool is self-structured consisting of 8 questions. These questions will be asked to the participants and also their case sheets will be referred.

Instructions:

- It is compulsory to answer all the questions given below.
- All the data collected will be used only for the research purpose.
- The confidentiality of all the information collected will be ensured by disclosing the data to investigator, guide and the co-guides only.

1.Have you conceived for the first time?

A) Yes

B) No

2.Is the pregnant mother above the age of 18 years?

A) Yes

B) No

3. Do you have access to a smartphone with internet accessibility at home?

A) Yes

B) No

5. Is Gestational age (in weeks) between > 28 weeks of gestation but < 32weeks + 6 days:

A) Yes

B) No

6. Are the pregnant women having normal course of pregnancy with no diagnosis of any complication related to pregnancy and other medical and surgical complication which might complicate the pregnancy and any psychological disorders and documented in your case file?

A) Yes

B) No

A) Yes

B) No

*If the mother meets all 6 criteria with “Yes” response, then recruit

Inference: Include/ Exclude

Annexure – 3

TOOL OF THE STUDY (ENGLISH)

Using pertinent literature, a self-structured tool was developed consisting of two sections: Section A covers socio-demographic variables of Pregnant women, Section B encompasses clinical variables of pregnant women.

Instructions: Code No. [ ]

- It is compulsory to answer all the questions given below.
- All the data collected will be used only for the research purpose.
- The confidentiality of all the information collected will be ensured by disclosing the data to investigator, guide and the co-guides only.

Section-A (Sociodemographic variables of pregnant women): Sociodemographic variables of mother include age, religion, Socio economic class, residence, type of diet, type of family, duration of marriage and any social support available.

Section 1: A. SOCIO DEMOGRAPHIC DATA

1.AGE (In Years)

2. RELIGION

A) Hindu

B) Muslim

C) Christian

D) Other (Specify) _____

3.Socio economic class (Modified Kuppuswamy socioeconomic scale 2023)
Upper(I)

Upper middle (II)

Lower middle (III)

Upper lower (IV)

Lower (V)

i). EDUCATIONAL (Modified Kuppuswamy socioeconomic scale 2023)

A) Professional degree

B) Graduate

C)Intermediate/ diploma

D)High school

E) Middle school

F) Primary School

G) Illiterate

ii). OCCUPATION (Modified Kuppuswamy socioeconomic scale 2023)

A) Legislators, senior officials, managers.
B) Professionals
C) Technicians/ associate professionals
D) Clerks
E) Skilled worker, shop and market sales workers
F) Skilled agricultural and fishery workers
G) Craft and related trade workers
H) Plant and machine operators and assemblers
I) Elementary occupation
J) Unemployed

iii). FAMILY INCOME IN RUPEES (Modified Kuppuswamy socioeconomic scale 2023)

A) >146,104
B) 109,580-146,103
C) 73,054-109,579
D) 68,455-73,053
E) 63,854-68,454
F) 59,252-63,853
G) 54,651-59,251
H) 45,589-54,650
I) 36,527-45,588
J) 21,914-36,526
K) 7316-21,913
L) <=7,315

4. RESIDENCE

A) Rural

B) Urban

5. TYPE OF DIET

A) Vegetarian

B) Non-Vegetarian

6. TYPE OF FAMILY

A) Nuclear

B) Joint

7. DURATION OF MARRIAGE

A) <1 year

B) 1-2 years

C) 2-3 years

D) >3 years

8.ANY SOCIAL SUPPORT AVAILABLE (if yes then answer below)

A) Mother-in-law

B) Sister-in-law

C) Mother

D) Spouse

E) Any other (Specify)

9. EDUCATION OF MOTHER

A) Illiterate

B) Secondary and lower education

C) Graduation and above

10. OCCUPATION OF MOTHER

A) Housewife

B) Services

11. IF EMPLOYED, THEN HOW MANY HOURS IS SPENT AT WORK?

A) < 8 HOURS

B) > 8 HOURS

Section 1. B. CLINICAL PROFILE OF ANTENATAL MOTHER

1.GESTATIONAL AGE (IN WEEKS)

2.TYPE OF PREGNANCY

A) Planned

B) Unplanned

3.NO. OF ANTENATAL VISIT (TILL NOW)

4.ATTENDED ANY CHILD BIRTH PREPARATION CLASSES

Section 2: **MATERNAL ANTENATAL ATTACHMENT SCALE**

Instructions:

Code No. [ ]

- It is compulsory to answer all the questions given below.
- All the data collected will be used only for the research purpose.
- The confidentiality of all the information collected will be ensured by disclosing the data to investigator, guide and the co-guides only.
- These questions are about your thoughts and feelings about the developing baby.
- Please tick one box only in answer to each question.

1.Over the past two weeks I have thought about, or been preoccupied with the baby inside me:

A) almost all the time
B) Very frequently
C) Frequently
D) Occasionally
E) Not at all

2.Over the past two weeks when I have spoken about, or thought about the baby inside me I got emotional feelings which were:

A) Very weak or non-existent
B) Fairly weak
C) In between strong and weak
D) Fairly strong
E) Very strong

3. Over the past two weeks my feelings about the baby inside me have been:

A) Very positive
B) Mainly positive
C) Mixed positive and negative
D) Mainly negative
E) Very negative

4.Over the past two weeks I have had the desire to read about or get information about the developing baby. This desire is:

A) Very weak or non-existent
B) Fairly weak
C) Neither strong nor weak
D) Moderately strong
E) Very strong

5.Over the past two weeks I have been trying to picture in my mind what the developing baby actually looks like in my womb:

A) Almost all the time

B) Very frequently
C)Frequently
D) Occasionally
E) Not at all

6.Over the past two weeks I think of the developing baby mostly as:

A) A real little person with special characteristics
B) A baby like any other baby
C) A human being
D) A living thing
E) A thing not yet really alive

7.Over the past two weeks I have felt that the baby inside me is dependent on me for its well-being:

A) Totally
B) A great deal
C) Moderately
D) Slightly
E) Not at all

8.Over the past two weeks I have found myself talking to my baby when I am alone

A) Not at all
B) Occasionally
C) Frequently
D) Very frequently
E) Almost all the time I am alone

9.Over the past two weeks when I think about (or talk to) my baby inside me, my thoughts:

A) Are always tender and loving
B) Are mostly tender and loving
C) Are a mixture of both tenderness and irritation
D) Contain a fair bit of irritation
E) Contain a lot of irritation

10. The picture in my mind of what the baby at this stage actually looks like inside the womb is:

A) Very clear
B) Fairly clear
C) Fairly vague
D) Very vague
E) I have no idea at all

11. Over the past two weeks when I think about the baby inside me I get feelings which are:

A) Very sad
B) Moderately sad
C) A mixture of happiness and sadness
D) Moderately happy
E) Very happy

12. Some pregnant women sometimes get so irritated by the baby inside them that they feel like they want to hurt it or punish it:
    A) I couldn't imagine I would ever feel like this
    B) I could imagine I might sometimes feel like this, but I never actually have
    C) I have felt like this once or twice myself
    D) I have occasionally felt like this myself
    E) I have often felt like this myself

13.Over the past two weeks I have felt:

    A. Very emotionally distant from my baby
    B. Moderately emotionally distant from my baby
    C. Not particularly emotionally close to my baby
    D. Moderately close emotionally to my baby
    E. Very close emotionally to my baby

14.Over the past two weeks I have taken care with what I eat to make sure the baby gets a good diet:

    A) Not at all
    B) Once or twice when I ate
    C) Occasionally when I ate
    D) Quite often when I ate
    E) Every time I ate

15.When I first see my baby after the birth, I expect I will feel:

    A) Intense affection
    B) Mostly affection
    C) Dislike about one or two aspects of the baby
    D) Dislike about quite a few aspects of the baby
    E) Mostly dislike

16.When my baby is born, I would like to hold the baby:

    A) Immediately
    B) After it has been wrapped in a blanket
    C) After it has been washed
    D) After a few hours for things to settle down
    E) The next day

17.Over the past two weeks I have had dreams about the pregnancy or baby:

    A) Not at all
    B) Occasionally
    C) Frequently
    D) Very frequently
    E) Almost every night

18.Over the past two weeks I have found myself feeling, or rubbing with my hand, the outside of my stomach where the baby is:

    A) A lot of times each day
    B) At least once per day
    C) Occasionally

D) Once only
E) Not at all

19.If the pregnancy was lost at this time (due to miscarriage or other accidental event) without any pain or injury to myself, I expect I would feel:

A) Very pleased
B) Moderately pleased
C) Neutral (i.e. neither sad nor pleased; or mixed feelings)
D) Moderately sad
E) Very sad

Scoring and scales

Quality of attachment

(3) (6) (9) (10) 11 (12) 13 (15) (16) 19

Time spent in attachment mode (or intensity of preoccupation)

(1) 2 4 (5) 8 14 17 (18)

Item 7 does not load on either factor strongly enough for inclusion on subscales. We usually include it in the global attachment score, and it should be reversed.

Items in brackets are reversed scored. Scoring is 1-5, with 5 high attachments.

Scoring:

Scores	Level of attachment (Category)
71 - 95	High level of attachment
46-70	Moderate level of attachment
19-45	Low level of attachment

TOOL OF THE STUDY (HINDI)

खंड 2:

प्रासंगिक साहित्य का उपयोग करते हुए, एक स्व-संरचित उपकरण विकसित किया गया था जिसमें दो खंड शामिल है: ए) गर्भवती महिलाओं के सामाजिक-जनसांख्यिकीय डेटा को कवर करता है, बी) गर्भवती महिलाओं के नैदानिक डेटा को शामिल करता है।

कोड नं. | |

निर्देश:

- नीचे दिए गए सभी प्रश्नों के उत्तर देना अनिवार्य है।
- एकत्र किए गए सभी डेटा का उपयोग केवल अनुसंधान उद्देश्य के लिए किया जाएगा।
- एकत्र की गई सभी सूचनाओं की गोपनीयता केवल अन्वेषक, गाइड और सह-गाइडों को डेटा का खुलासा करके सुनिश्चित की जाएगी।

खंड-ए (गर्भवती महिलाओं के समाजशास्त्रीय डेटा): मां के समाजशास्त्रीय चर में उम्र, धर्म, सामाजिक आर्थिक वर्ग, निवास, आहार का प्रकार, परिवार का प्रकार, शादी की अवधि और उपलब्ध कोई भी सामाजिक समर्थन शामिल है।

ए) सामाजिक जनसांख्यिकीय डेटा

(मां के सामाजिक-जनसांख्यिकीय चर में उम्र, धर्म, सामाजिक आर्थिक वर्ग, निवास, आहार का प्रकार, परिवार का प्रकार, विवाह की अवधि और उपलब्ध कोई भी सामाजिक सहायता शामिल है।)

1.आयु (वर्षों में)	
2. धर्म A)हिंदू B) मुस्लिम C) ईसाई D) अन्य (स्पष्ट कीजिए)	
3. सामाजिक आर्थिक वर्ग (संशोधित कुप्पुस्वामी सामाजिक आर्थिक पैमाना 2023) अपर(I) ऊपरी मध्य (II) निम्न मध्य (III) ऊपरी निचला (IV) निचला (V) i)परिवार के मुखिया की शिक्षा	

(संशोधित कुप्पुस्वामी सामाजिक आर्थिक पैमाना 2023) A) व्यावसायिक डिग्री B) ग्रेजुएट C) इंटरमीडिएट/डिप्लोमा D) हाई स्कूल E) मिडिल स्कूल F) प्राथमिक विद्यालय G) अनपढ़ ii) परिवार के मुखिया का व्यवसाय (संशोधित कुप्पुस्वामी सामाजिक आर्थिक पैमाना 2023) A)विधायक, वरिष्ठ अधिकारी, प्रबंधक। B)प्रोफेशनल C)तकनीशियन/सहयोगी प्रोफेशनल D)क्लर्क E)कुशल श्रमिक, दुकान और बाजार बिक्री कार्यकर्ता F)कुशल कृषि और मत्स्य श्रमिक G)क्राफ्ट और संबंधित व्यापार कार्यकर्ता H)प्लांट और मशीन ऑपरेटर और कोडांतरक I)प्राथमिक व्यवसाय J)बेरोज़गार iii)रुपये में पारिवारिक आय (संशोधित कुप्पुस्वामी सामाजिक आर्थिक पैमाना 2023) A) >146,104 B)109,580-146,103 C)73,054-109,579 D)68,455-73,053 E)63,854-68,454 F)59,252-63,853 G)54,651-59,251 H)45,589-54,650 I)36,527-45,588 J)21,914-36,526 K)7316-21,913 L)<=7,315	
4.रिहायश A) ग्रामीण B) शहरी C) अर्ध शहरी	
5. आहार का प्रकार	

A) शाकाहारी B) मांसाहारी	
6.परिवार का प्रकार A) न्यूक्लियर परिवार B) संयुक्त परिवार C) विस्तारित परिवार	
7. शादी की अवधि A) <1 वर्ष B) 1-3 साल C) >3 साल	
8.घर पर उपलब्ध कोई भी सामाजिक सहायता (यदि हाँ, तो नीचे उत्तर दें) A) सास B) भाभी C) माता D) पति/पत्नी ई) कोई अन्य (निर्दिष्ट करें).....	
9. माता की शिक्षा A) अनपढ़ B) ग्रेजुएट C) व्यावसायिक डिग्री	
10. माता का व्यवसाय A) गृहिणी B) नियोजित	
11. यदि नियोजित है, तो कार्य पर कितने घंटे खर्च किए जाते हैं? A) < 8 घंटे B) > 8 घंटे	

बी) प्रसवपूर्व मां की नैदानिक प्रोफ़ाइल

(इस खंड में जानकारी शामिल है: गर्भकालीन आयु, गर्भावस्था का प्रकार, नहीं। प्रसवपूर्व यात्राओं की संख्या और किसी भी बच्चे के जन्म की तैयारी कक्षाओं में भाग लेना।)

1. गर्भकालीन आयु (सप्ताह में)

2. गर्भावस्था का प्रकार

A) नियोजित

B) अनियोजित

3. प्रसवपूर्व यात्राओं की संख्या(अब तक)

4. किसी भी बच्चे के जन्म की तैयारी कक्षाओं में भाग लिया

A) नहीं

B) हाँ

यदि हाँ, तो ---------- निर्दिष्ट करें

खंड 3: मातृ प्रसवपूर्व लगाव स्केल

निर्देश: कोड नं.

- नीचे दिए गए सभी प्रश्नों के उत्तर देना अनिवार्य है।
- एकत्र किए गए सभी डेटा का उपयोग केवल अनुसंधान उद्देश्य के लिए किया जाएगा।
- एकत्र की गई सभी सूचनाओं की गोपनीयता केवल अन्वेषक, गाइड और सह-गाइडों को डेटा का खुलासा करके सुनिश्चित की जाएगी।
- ये प्रश्न विकासशील बच्चे के बारे में आपके विचारों और भावनाओं के बारे में हैं।
- कृपया प्रत्येक प्रश्न के उत्तर में केवल एक बॉक्स पर टिक करें।

1.पिछले दो हफ्तों में मैंने अपने अंदर के बच्चे के बारे में सोचा है, या व्यस्त हूं:

A) लगभग हर समय
B) बहुत बार
C) बार बार
D) कभी कभी
E) बिलकुल नहीं

2. पिछले दो हफ्तों में जब मैंने अपने अंदर के बच्चे के बारे में बात की है, या सोचा है तो मुझे भावनात्मक भावनाएं मिलीं जो थीं:

A) बहुत कमजोर या अस्तित्वहीन
B) काफी कमजोर
C) मजबूत और कमजोर के बीच में
D) काफी मजबूत
E) बहुत मजबूत

3. पिछले दो हफ्तों में मेरे अंदर बच्चे के बारे में मेरी भावनाएं रही हैं:

A) बहुत सकारात्मक
B) मुख्य रूप से सकारात्मक
C) मिश्रित सकारात्मक और नकारात्मक

D) मुख्य रूप से नकारात्मक
E) बहुत नकारात्मक

4.पिछले दो हफ्तों में मुझे विकासशील बच्चे के बारे में पढ़ने या जानकारी प्राप्त करने की इच्छा हुई है। यह इच्छा है:

A) बहुत कमजोर या अस्तित्वहीन
B) काफी कमजोर
C) न मजबूत न कमजोर
D) मध्यम रूप से मजबूत
E) बहुत मजबूत

5. पिछले दो हफ्तों से मैं अपने दिमाग में यह कल्पना करने की कोशिश कर रही हूं कि विकासशील बच्चा वास्तव में मेरे गर्भ में कैसा दिखता है:

A) लगभग हर समय
B) बहुत बार
C) बार-बार
D) कभी कभी
E) बिलकुल नहीं

6. पिछले दो हफ्तों में मैं विकासशील बच्चे के बारे में ज्यादातर सोचता हूं:

A) विशेष विशेषताओं वाला एक वास्तविक छोटा व्यक्ति
B) किसी भी अन्य बच्चे की तरह एक बच्चा
C) एक इंसान
D) एक जीवित चीज
E) एक चीज जो अभी तक वास्तव में जीवित नहीं है

7. पिछले दो हफ्तों में मैंने महसूस किया है कि मेरे अंदर का बच्चा अपने स्वास्थ्य

के लिए मुझ पर निर्भर है:

A) पूरी तरह से निर्भर
B) अत्यधिक निर्भर
C) मामूली
D) ज़रा
E) बिलकुल नहीं

8. पिछले दो हफ्तों में मैंने खुद को अपने बच्चे से बात करते हुए पाया है जब भी मैं अकेली हूं

A) बिलकुल नहीं
B) कभी कभी
C) बार बार
D) बहुत बार
E) लगभग हर समय जब भी मैं अकेली होती हूं

9. पिछले दो हफ्तों में जब मैं अपने बच्चे के बारे में सोचती हूं (या बात करती हूं), मेरे विचार:

A) हमेशा कोमल और प्यार करने वाले होते हैं
B) ज्यादातर कोमल और प्यार करने वाले होते हैं
C) कोमलता और जलन दोनों का मिश्रण हैं
D) थोड़ी जलन होती है
E) बहुत जलन होती है

10. मेरे दिमाग में तस्वीर है कि इस स्तर पर बच्चा वास्तव में गर्भ के अंदर कैसा दिखता है:

A) बहुत स्पष्ट
B) काफी स्पष्ट
C) काफी अस्पष्ट
D) बहुत अस्पष्ट
E) मुझे बिल्कुल पता नहीं है

11. पिछले दो हफ्तों में जब मैं अपने अंदर के बच्चे के बारे में सोचती हूं तो मुझे भावनाएं मिलती हैं जो हैं:

A) बहुत दुखी
B) मध्यम रूप से उदास
C) खुशी और दुख का मिश्रण
D) मध्यम रूप से खुश
E) बहुत खुश

12.कुछ गर्भवती महिलाएं कभी-कभी अपने अंदर के बच्चे से इतनी चिढ़ जाती हैं कि उन्हें लगता है कि वे इसे चोट पहुंचाना चाहती हैं या उसे दंडित करना चाहती हैं:

A) मैं कल्पना नहीं कर सकती कि मैं कभी ऐसा महसूस करूंगा
B) मैं कल्पना कर सकती हूं कि मैं कभी-कभी ऐसा महसूस कर सकती हूं, लेकिन मेरे साथ वास्तव में कभी नहीं हुआ
C) मैंने खुद एक या दो बार ऐसा महसूस किया है
D) मैंने कभी-कभी खुद को ऐसा महसूस किया है
E) मैंने अक्सर खुद को ऐसा महसूस किया है

13. पिछले दो हफ्तों में मैंने महसूस किया है:

A) मेरे बच्चे से भावनात्मक रूप से बहुत दूर
B) मेरे बच्चे से भावनात्मक रूप से दूर
C) विशेष रूप से भावनात्मक रूप से मेरे बच्चे के करीब नहीं है
D) मेरे बच्चे के लिए भावनात्मक रूप से करीब
E) मेरे बच्चे के लिए भावनात्मक रूप से बहुत करीब

14. पिछले दो हफ्तों में मैंने इस बात का ध्यान रखा है कि मैं क्या खाती हूं ताकि यह सुनिश्चित हो सके कि बच्चे को अच्छा आहार मिले:

A) बिलकुल नहीं
B) एक या दो बार जब मैंने खाया
C) कभी-कभी जब मैंने खाया
D) अक्सर जब मैंने खाया
E) हर बार जब मैंने खाया

15.जब मैं पहली बार जन्म के बाद अपने बच्चे को देखती हूं तो मुझे उम्मीद है कि मैं महसूस करूंगी:

A) बहुत ज्यादा स्नेह
B) ज्यादातर स्नेह
C) बच्चे के एक या दो पहलुओं के बारे में नापसंद
D) बच्चे के कुछ पहलुओं के बारे में नापसंद
E) ज्यादातर नापसंद

16. जब मेरा बच्चा पैदा होता है तो मैं बच्चे को पकड़ना चाहूंगी:

A) तुरंत
B) कंबल में लपेटने के बाद
C) इसे धोने के बाद
D) चीजों को व्यवस्थित करने के लिए कुछ घंटों के बाद
E) अगले दिन

17. पिछले दो हफ्तों में मुझे गर्भावस्था या बच्चे के बारे में सपने आए हैं:

A) बिलकुल नहीं
B) कभी कभी
C) बार बार
D) बहुत बार
E) लगभग हर रात

18. पिछले दो हफ्तों में मैंने खुद को महसूस किया है, या अपने हाथ से सहलाया , मेरे पेट के बाहर जहां बच्चा है:

A) हर दिन
B) कई बार
C) प्रति दिन कम से कम एक बार
D) कभी कभी केवल एक बार
E) बिलकुल नहीं

19.यदि गर्भावस्था इस समय (गर्भपात या अन्य आकस्मिक घटना के कारण) बिना किसी दर्द या चोट के खो गई , तो मुझे उम्मीद है कि मुझे लगेगा:

A) बहुत प्रसन्न
B) मध्यम रूप से प्रसन्न
C) तटस्थ (यानी न तो दुखी और न ही प्रसन्न; या मिश्रित भावनाएं)
D) मध्यम रूप से उदास
E) बहुत दुखी

CERTIFICATE OF LANGUAGE TRANSLATION

CERTIFICATE OF TRANSLATION

TO WHOM IT MAY CONCERN

This is to certify that Ms. Priya kumari, M.Sc. Nursing 2023-2025 Batch (Obstetrics and Gynecology Nursing), student of Nursing College, AIIMS Bhopal is conducting research on topic **"Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A randomized Controlled Trial".**

The Hindi version of research tool for this study is a true and accurate translation of the English version and is valid to collect data for research.

07/06/2024

Seal & Signature.....(डा. अछेलाल).....
विभागाध्यक्ष
पुस्तकालय भाषा एवं संस्कृति विभाग
बरकतउल्ला विश्वविद्यालय, भोपाल

Name of the language expert डा० अछेलाल

Designation: सह प्राध्यापक

Qualification: .....

Date: 07-06-2024

Place: भोपाल

CERTIFICATE OF LANGUAGE TRANSLATION

CERTIFICATE OF BACK TRANSLATION (Hindi to English)

TO WHOM IT MAY CONCERN

This is to certify that Ms. Priya kumari, M.Sc. Nursing 2023-2025 Batch (Obstetrics and Gynecology Nursing), student of Nursing College, AIIMS Bhopal is conducting research on topic **"Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A randomized Controlled Trial".**

The English version of research tool for this study is a true and accurate translation of the Hindi version and is valid to collect data for research.

Seal & Signature ..... 13/09/2024 .....

Name of the language expert: ..... Dr. Jyoti Thakur .....

Designation: ..... Faculty in English .....

Qualification: ..... Ph.D .....

Date: ..... 13/09/24 .....

Place: ..... Bhopal .....

ANNEXURE – 3

LIST OF EXPERTS FOR TOOL VALIDITY OF THE TOOL

S. NO.	Name of the Expert	Designation and institution
Expert 1	Dr. Naseema Shafqat	Assistant Professor, College of Nursing, AIIMS Bhopal
Expert 2	Mrs. Geeta Bhardwaj	Assistant Professor, College of Nursing, AIIMS Bhopal
Expert 3	Dr. Ajay Haldar	Associate Professor Obstetrics and Gynecology Department, AIIMS Bhopal
Expert 4	Dr. Arun Kumar Dora	Associate Professor Obstetrics and Gynecology Department, AIIMS Bhopal
Expert 5	Dr. Bharti Singh	Assistant Professor Obstetrics and Gynecology Department, AIIMS Bhopal
Expert 6	Danish Javed	Senior Medical Officer AYUSH, AIIMS Bhopal
Expert 7	Himanshu Vyas	Associate Professor, College of Nursing, AIIMS Jodhpur
Expert 8	Dr. Prasuna Jelly	Associate Professor, College of Nursing, AIIMS Rishikesh
Expert 9	Ms. Manita Dalal	Tutor, College of Nursing, AIIMS Delhi
Expert 10	Mrs. Vahitha S	College of Nursing AIIMS Raipur
Expert 11	D Koteswaramma	College of Nursing, AIIMS Patna
Expert 12	Mrs. Anju Verma	Associate Professor College of Nursing SGPGIMS
Expert 13	Dr. Renu	Associate Professor St. Stephen Hospital, College of Nursing.
Expert 14	Dr. Avantika Gupta	Associate professor. Department of OBG, AIIMS Bhopal.
Expert 15	Sheetal Samson	Clinical consultant, midwifery, Fernandez Hospital
Expert 16	Frincy Francis	Clinical Instructor and Lecturer, Department of MCH, Sultan Qaboos University, Oman.

ANNEXURE – 4

Content Validation Letter

LETTER REQUESTING EXPERTS' OPINION AND SUGGESTIONS FOR THE CONTENT VALIDITY OF RESEARCH TOOL

Date:

From,

Priya Kumari

M.Sc. Nursing (Batch 2023-2025) Nursing college, AIIMS Bhopal.

To,

……..

Subject: Requesting the expert's opinion and suggestion for the content validity of research tool
Respected Sir/ Madam,

I, Priya kumari, M.Sc. Nursing (Batch 2023-2025) student in Obstetrics & Gynaecological Nursing at Nursing College of AIIMS Bhopal. I have selected the topic mentioned below for my dissertation to be submitted as partial fulfilment of Masters in Nursing Degree programme, at the nursing college, AIIMS Bhopal.

Title of the study: Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A randomised Controlled Trial.

In this regard I have prepared the following:

1. Self-structured tool for collection of sociodemographic and clinical data
2. Structured intervention designed by the researcher midwife

May I request you to kindly go through the content and give your valuable remarks and suggestions for any modification needed. I also plea you to accept the request and sign the enclosed certificate of validation.

I shall be grateful to you for your valuable remarks and suggestions.

Thanking you in anticipation.

Yours sincerely,

Priya Kumari

M.Sc. Nursing (Batch 2023-2025)

GUIDE	**Co-guide**	**Co-guide**
Dr. Lily Podder	**Mr. Kumarasamy**	**Dr. K. Pushpalatha**
Associate Professor	**Assistant Professor**	**Prof & HOD, Obs & gynae**
AIIMS Bhopal	**AIIMS Bhopal**	**AIIMS Bhopal**

Enclosed with: Letter of permission, Brief synopsis, Research tool, Detailed Intervention (Structured intervention designed by the researcher midwife), Criteria checklist for content validity of the tool, Certificate of Validation, Maternal antenatal attachment scale (Standardised tool and available in Open Domain).

CRITERIA CHECKLIST FOR THE VALIDATION OF THE TOOL

Section 1 -Part A: Demographic data

The tool contains 8 items regarding sociodemographic data. We need your expert judgement on degree of relevancy of each item to the measured domains. If there are any suggestions, please mention in the remark column.

s.no.	Item number	Highly relevant 4	Quite relevant 3	Somewhat relevant 2	Not relevant 1	Remarks
1.	AGE (In Years)					
2.	RELIGION A) Hindu B) Muslim C) Christian D) Other (Specify) _____					
3.	Socio economic class (Modified Kuppuswamy socioeconomic scale 2023) Upper(I) Upper middle (II) Lower middle (III) Upper lower (IV) Lower (V) i). EDUCATIONAL (Modified Kuppuswamy socioeconomic scale 2023) A) Professional degree B) Graduate C)Intermediate/ diploma D)High school E) Middle school F) Primary School G) Illiterate ii). OCCUPATION (Modified Kuppuswamy socioeconomic scale 2023) K) Legislators, senior officials, managers.					

	L) Professionals M) Technicians/ associate professionals N) Clerks O) Skilled worker, shop and market sales workers P) Skilled agricultural and fishery workers Q) Craft and related trade workers R) Plant and machine operators and assemblers S) Elementary occupation T) Unemployed iii). FAMILY INCOME IN RUPEES (Modified Kuppuswamy socioeconomic scale 2023) M) >146,104 N) 109,580-146,103 O) 73,054-109,579 P) 68,455-73,053 Q) 63,854-68,454 R) 59,252-63,853 S) 54,651-59,251 T) 45,589-54,650 U) 36,527-45,588 V) 21,914-36,526 W) 7316-21,913 **X)** <=7,315					
4.	4. RESIDENCE A) Rural B) Urban					
5.	5. TYPE OF DIET A) Vegetarian B) Non-Vegetarian					
6.	6. TYPE OF FAMILY A) Nuclear B) Joint					
7.	7. DURATION OF MARRIAGE A) <1 year B) 1-2 years C) 2-3 years D) >3 years					

8.	8.ANY SOCIAL SUPPORT AVAILABLE (if yes then answer below) A) Mother-in-law B) Sister-in-law C) Mother D) Spouse E) Any other (Specify)					

Section 2 -Part B: clinical sheet Performa

The tool contains 4 items regarding clinical data. We need your expert judgement on degree of relevancy of each item to the measured domains. If there are any suggestions, please mention in the remark column.

s.no.	Item number	Highly relevant 4	Quite relevant 3	Somewhat relevant 2	Not relevant 1	Remarks
1.	GESTATIONAL AGE (IN WEEKS)					
2.	TYPE OF PREGNANCY A) Planned B) Unplanned					
3.	NO. OF ANTENATAL VISIT (TILL NOW)					
4.	ATTENDED ANY CHILD BIRTH PREPARATION CLASSES					

Annexure - 5

Certificate of validation for tool and Intervention

This is to certify that the tool prepared by Priya Kumari, M.Sc. Nursing 2023 batch student, Nursing college, AIIMS Bhopal, to be used in her study titled "Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A Randomized Controlled Trial" has been validated by me and is found to be valid/ not valid.

Overall Remark-

Signature:

Name of the expert:

Designation:

Name of the Institution:

Official seal:

Date:

Place:

Certificate of validation for Intervention Protocol

This is to certify that the Intervention Protocol ("Intervention designed by the researcher midwife") prepared by Priya Kumari, M.Sc. Nursing 2023 batch student, Nursing college, AIIMS Bhopal, to be used in her study titled "Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospital of Bhopal – A Randomized Controlled Trial", has been validated by me and is found to be valid/ not valid.

Overall Remark-

Signature:

Name of the expert:

Designation:

Name of the Institution:

Official seal:

Date:

Place:

Annexure – 6

INTERVENTION PROTOCOL

DESCRIPTION OF INTERVENTION PROTOCOL

Name of Intervention Protocol: structured intervention designed by the researcher midwife.

Intervention will include:

Total time period for the intervention: **21 days**

Total duration of intervention is **30 mins.**

Frequency of the intervention**: Once (Before bed).**

Instructions:

- Before starting the intervention find a comfortable position to perform (sit with back support on chair, couch, or bed)
- Take a deep Breath.
- Relax your body – close your eyes if you are comfortable doing so or you can keep your eyes open, place your both hand on your abdomen.

Step 1. For first 10 mins put your both hands on the upper part of abdomen and feel for fetal movements and speak 5 following positive affirmation sentences to the fetus:

vi. I am dedicated and loving mother.

vii. I love my baby unconditionally.

viii. I will have a strong and healthy baby.

ix. I love my baby and my baby loves me

x. My baby is safe and secure.

Step 2. For second 10 mins put your both hands on the Right and left lateral sides of abdomen and feel the fetal movements and speak 5 following positive affirmation sentences to the fetus:

vi. My baby is growing strong and healthy.

vii. I will make the right decisions for my baby.

viii. I know how to take care of my baby.

ix. I will breast feed my baby.

x. I eat nourishing healthy foods so help my baby grow.

Step 3. For the last 10 mins put your both hands on the lower part of your abdomen and feel the fetal movements and speak following 5 positive affirmation sentences to the fetus:

vi. I am accepting my pregnancy experiences.

vii. My baby will be born healthy and at the perfect time.

viii. My baby will be born without any complications.

ix. I am capable of delivering this baby.

x. I welcome my baby with love and happiness.

Structured Compliance Checklist:

Mother will record the timing and will tick mark the provided checklist.

Day	Timing
Day 1	☐
Day 2	☐
Day 3	☐
Day 4	☐
Day 5	☐
Day 6	☐
Day 7	☐
Day 8	☐
Day 9	☐
Day 10	☐
Day 11	☐
Day 12	☐
Day 13	☐

Day 14	☐
Day 15	☐
Day 16	☐
Day 17	☐
Day 18	☐
Day 19	☐
Day 20	☐
Day 21	☐

Structured Reminder Protocol:

For checking adherence to the intervention, investigator had made sure to be in contact with the participant via Telephonic call, WhatsApp Audio message, WhatsApp Text message. The researcher had created common WhatsApp group of the participants in the intervention group, via this group researcher used to contact the participants.

Annexure – 7

PARTICIPANT INFORMATION SHEET

Participant information sheet (English)

Study Title:

Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospitals of Bhopal – A randomised Controlled Trial.

Study Investigators:

• **Student**: Priya kumari, obstetrics and gynaecology Nursing, MSc Nursing-1 st year, AIIMS Bhopal.

• **Guide**: Dr. Lily Podder, Associate Professor (obstetrics and gynaecology), Nursing College, AIIMS Bhopal.

• **Co-Guides:** 1) Mr. Kumarasamy, Assistant Professor, Nursing College, AIIMS Bhopal.

1.Introduction:

We are conducting a research study to assess the effect of fetus targeted maternal activities on feto-maternal attachment among the pregnant women of selected tertiary care hospitals of Bhopal, Madhya Pradesh. The intervention i.e. fetus targeted maternal activities will include [1. Maternal touch to sense the fetal movements in the womb by touching the abdomen (at three areas that is Upper abdomen (10 minutes), Left and Right lateral side (10 minutes), Lower abdomen (10 minutes)) for 30 minutes a day.

2. Positive affirmations sentences focusing on the fetal well-being and positive health outcome after the delivery.] Mother will be asked questions regarding thoughts and feelings about the developing baby, prior to performing these activities. Then mother will be asked to perform these activities for 3 weeks and again Maternal Antenatal Attachment Scale will be filled by the mother which contain questions related to the thoughts and feelings about the developing baby.

We kindly request you to give your consent so that we can complete our study. Your voluntary agreement is appreciated, and if you choose to participate, we will provide a consent form for your signature.

2.Purpose of the study:

The purpose of this study is to assess the effect of fetus targeted maternal activities on feto-maternal attachment among the pregnant women of selected tertiary care hospitals of Bhopal, Madhya Pradesh.

The intervention used in the study i.e. fetus focused maternal activities, which include Maternal touch to sense the fetal movements in the womb by touching the abdomen will help to develop a stronger bond between mother and developing baby and it may impact the emotional and psychological well-being of both the mother and the developing fetus.

The positive affirmations sentences focusing on fetal well-being and positive health outcome after the delivery may foster a stronger maternal connection even before birth.

The development of feto-maternal attachment greatly affects the postnatal child care environment and child development.

Healthy feto-maternal attachment may serve to allow women to adopt optimal health practices earlier, thereby on large scale contribute toward reduction of obstetrical maternal and child morbidity and mortality.

3.Taking part – what it involves:

a. Do I have to take part?

Participation in this research is completely voluntary. Choosing not to participate or withdrawing at any point will have no impact on any of your rights.

b. What is expected of me if I take part?

Upon agreeing to participate in the study, following informed consent, we will provide you demonstration on the fetus focused maternal activities and simultaneously you will come to know about the importance of following these activities during your pregnancy and you have to carry out these activities till 3 weeks and evaluation of the intervention will also be the part of the study. This information will be kept confidential and not disclosed to anyone.

c. How long will my part in the study last?

The duration of participation will be 3 weeks.

d. Do I have to come for extra visits or undergo extra investigations for the study? No

e. What are the possible benefits in taking part?

On taking part in this study, you will be able to make better connection with your baby even before the delivery. It may increase the attachment between you and your baby.

And this attachment greatly affects the postnatal child-care environment and child development. It may help in the better physical and mental growth of the fetus. and it may help to led better outcomes after the delivery for the mother.

f. What are the possible disadvantages and risks of taking part?

There is no harm/risk due to participation in this study. Although every effort will be made to protect privacy and maintain confidentiality, it may be not possible to do so under certain circumstances. There is minimal risk involved due to loss of confidentiality as per **ICMR guidelines**.

g. What happens to the information collected from me?

All information collected will be kept strictly confidential and not shared with anyone. Results from the study will be reported as group data and will not reveal your identity in any way.

h. What if I change my mind regarding participation in the study?

You are entitled to change your mind and withdraw at any time during the study without any disadvantages or penalty.

i. Whom do I contact for more information or if I have further questions or concerns?

If you want any information or have questions or concerns, you can contact the following:

Priya kumari
Post graduate student
Department of
Obstetrics and Gynaecology
Nursing
AIIMS Bhopal,
(9785617430, priyak.mscnursing23@aiimsbhopal.edu.in)

Dr. Ankur Joshi
Member Secretary
Institute Ethics Committee-
Student Research
(8818899050,
ihecpgr@aiimsbhopal.edu.in)

Participant Information Sheet (Hindi)

अध्ययन का शीर्षक: भोपाल के चुनिंदा तृतीयक देखभाल अस्पतालों में गर्भवती महिलाओं के बीच भ्रूण-

मातृ लगाव पर भ्रूण लक्षित मातृ गतिविधियों का प्रभाव - एक यादृच्छिक नियंत्रित परीक्षण।

अध्ययन जांचकर्ता

छात्र (नाम, विभाग): प्रिया कुमारी, M.sc c नर्सिंग छात्र (2022-2024 बैच) प्रसूहत और स्त्री रोग संबंधी नर्सिंग, कॉलेज ऑफ नर्सिंग, एम्स, भोपाल।

मार्गदर्शक (गाइड) (नाम, विभाग): डॉ. लिली पोडर, एसोसिएट प्रोफेसर,(प्रसूहत एवं स्त्री रोग संबंधी नर्सिंग) , नर्सिंग कॉलेज, एम्स, भोपाल।

सह मार्गदर्शक/कों (नाम, विभाग):1. श्री कुमारसामी, सहायक प्रोफेसर, नर्सिंग कॉलेज, एम्स भोपाल।

1.परिचयः हम भोपाल, मध्य प्रदेश के चयनित तृतीयक देखभाल अस्पतालों में गर्भवती महिलाओं के बीच भ्रूण-मातृ लगाव पर भ्रूण लक्षित मातृ गतिविधियों के प्रभाव का आकलन करने के लिए एक शोध अध्ययन कर रहे हैं| हस्तक्षेप यानी भ्रूण लक्षित मातृ गतिविधियों में शामिल होंगे [1. पेट को छूकर गर्भ में भ्रूण की गतिविधियों को महसूस करने के लिए मातृ स्पर्श (तीन क्षेत्रों में जो ऊपरी पेट (10 मिनट), बाएं और दाएं पार्श्व पक्ष (10 मिनट), निचले पेट (10 मिनट)) दिन में 30 मिनट के लिए।

प्रसव के बाद भ्रूण की भलाई और सकारात्मक स्वास्थ्य परिणाम पर ध्यान केंद्रित करने वाले सकारात्मक पुष्टिकरण। इन गतिविधियों को करने से पहले, माँ से विकासशील बच्चे के बारे में विचारों और भावनाओं के बारे में प्रश्न पूछे जाएंगे। फिर मां को 3 सप्ताह के लिए इन गतिविधियों को करने के लिए कहा जाएगा और फिर से मां द्वारा मातृ प्रसवपूर्व अनुलग्नक स्केल भरा जाएगा जिसमें विकासशील बच्चे के बारे में विचारों और भावनाओं से संबंधित प्रश्न होंगे।

यदि आप स्वेच्छा से भाग लेने के लिए सहमत है तो, हम आपसे यह सहमति प्रपत्र हस्ताक्षर करने के लिए आग्रह करेंगे।

2.अध्ययन का उद्देश्यः

इस अध्ययन का उद्देश्य भोपाल, मध्य प्रदेश के चयनित तृतीयक परिचर्या अस्पतालों की गर्भवती महिलाओं के बीच भ्रूण-मातृ संलग्नक पर भ्रूण लक्षित मातृ क्रियाकलापों के प्रभाव का आकलन करना है।

अध्ययन में इस्तेमाल किया गया हस्तक्षेप यानी भ्रूण केंद्रित मातृ गतिविधियां, जिसमें पेट को छूकर गर्भ में भ्रूण की गतिविधियों को महसूस करने के लिए मातृ स्पर्श शामिल है, मां और विकासशील बच्चे के बीच एक मजबूत बंधन विकसित करने में मदद करेगा और यह मां और विकासशील भ्रूण दोनों के भावनात्मक और मनोवैज्ञानिक कल्याण को प्रभावित कर सकता है।

प्रसव के बाद भ्रूण की भलाई और सकारात्मक स्वास्थ्य परिणाम पर ध्यान केंद्रित करने वाले सकारात्मक प्रतिज्ञान वाक्य जन्म से पहले भी एक मजबूत मातृ संबंध को बढ़ावा दे सकते हैं। भ्रूण-मातृ लगाव का विकास प्रसवोत्तर बाल देखभाल पर्यावरण और बाल विकास को बहुत प्रभावित करता है।

स्वस्थ भ्रूण-मातृ लगाव महिलाओं को पहले इष्टतम स्वास्थ्य प्रथाओं को अपनाने की अनुमति देने के लिए काम कर सकता है, जिससे बड़े पैमाने पर प्रसूति मातृ और बाल रुग्णता और मृत्यु दर को कम करने में योगदान होता है।

3.भाग लेना – इसमें क्या शामिल है ?

a. **क्या मुझे भाग लेना चाहिए ?** इस अनुसंधान में भाग लेना पूर्णतः स्वैच्छिक है । भाग नहीं लेने का निर्णय या किसी भी समय अपना नाम वापस लेने से, किसी भी रूप में आपके अधिकारों या आपकी चिकित्सा देखभाल पर कोई विपरीत प्रभाव नहीं पड़ेगा ।

b. **यदि मैं इसमें शामिल होता हूं तो मुझसे क्या अपेक्षित हैं ?** अध्ययन में भाग लेने के लिए सहमत होने पर, सूचित सहमति के बाद, हम आपको भ्रूण केंद्रित मातृ गतिविधियों पर प्रदर्शन प्रदान करेंगे और साथ ही आपको अपनी गर्भावस्था के दौरान इन गतिविधियों का पालन करने के महत्व के बारे में पता चल जाएगा और आपको इन गतिविधियों को 3 सप्ताह तक करना होगा और हस्तक्षेप का मूल्यांकन भी अध्ययन का हिस्सा होगा। यह जानकारी गोपनीय रखी जाएगी और किसी को भी नहीं दी जाएगी।

c. **अध्ययन में मेरी भागीदारी कब तक चलेगी ?** भागीदारी की अवधि 3 सप्ताह की होगी।

d. **क्या मुझे इस अध्ययन के लिए अलग से आना पड़ेगा या अतिरिक्त जांच जरूरी होगी।** नहीं

e. **इसमें शामिल होने से संभावित लाभ क्या है ?** इस अध्ययन में भाग लेने पर आप प्रसव से पहले ही अपने बच्चे के साथ बेहतर संबंध बना पाएंगे। यह आपके और आपके बच्चे के बीच लगाव बढ़ा सकता है। और यह लगाव प्रसवोत्तर बाल-देखभाल वातावरण और बाल विकास को बहुत प्रभावित करता है। यह भ्रूण के बेहतर शारीरिक और मानसिक विकास में मदद कर सकता है। और यह माँ के लिए प्रसव के बाद बेहतर परिणाम देने में मदद कर सकता है।

f. **इसमें भाग लेने से संभावित हानि एवं जोखिम ।** इस अध्ययन में भागीदारी के कारण कोई नुकसान / जोखिम नहीं है। यद्यपि गोपनीयता की रक्षा और गोपनीयता बनाए रखने के लिए हर संभव प्रयास किया जाएगा, लेकिन कुछ परिस्थितियों में ऐसा करना संभव नहीं हो सकता है। आईसीएमआर के दिशानिर्देशों के अनुसार गोपनीयता खोने के कारण न्यूनतम जोखिम शामिल है।

g. **मेरे बारे में एकत्र की गई सूचना का क्या किया जाएगा ?** एकत्र की गई सभी सूचना पूर्णतः गोपनीय रखी जाएगी तथा अध्ययन से प्राप्त निष्कर्षों को अन्य किसी से साझा नहीं किया जाएगा । इन्हें ग्रुप आंकड़े के रूप मे रिपोर्ट किया जाएगा और किसी भी तरह से आपकी पहचान उजागर नहीं होगी ।

h. **इस अध्ययन मे भाग लेने के लिए मेरे विचार बदलने पर क्या होगा ?** अध्ययन के दौरान किसी भी समय बिना किसी क्षति या दंड के आपको अपने विचार बदलने का पूरा अधिकार है ।

i. **इस संबंध मे अधिक जानकारी के लिए या बाद मे मेरे मन मे कोई प्रश्न या शंका होने पर मुझ किनसे संपर्क करना होगा ?**

यदि आप कोई सूचना चाहते हैं या आपका कोई प्रश्न है या शंका है तो आप इन नंबरों पर संपर्क कर सकते हैं:

प्रिया कुमारी,
स्नातक छात्र,
प्रसूहत और स्त्री रोग विभाग, एम्स, भोपाल
(9785617430,
Priyak.mscnursing23@aiimsbhopal.edu.in)

डॉ अंकुर जोशी
सदस्य सचिव,
संस्थान आचार समिति – छात्र अनुसंधान
(8818899050,
ihecpgr@aiimsbhopal.edu.in)

ANNEXURE – 8

Participant consent form (English)

Participant Identification number for this study:

Title of the study: "Effect of fetus targeted maternal activities on feto-maternal attachment among pregnant women in selected tertiary care hospitals of Bhopal – A randomised Controlled Trial".

Name of the Principal Investigator: Ms. Priya kumari,

Mobile Number: 9785617430

The content of the information sheet dated ----------, have been read carefully by me or explained in detail to me, in a language I comprehend, and I have fully understood the content. I confirm that I have had the opportunity to ask questions. The nature, purpose, potential risks/benefits and expected duration of the study, and other relevant details have been explained to me in detail.

I acknowledge that my participation in this study is voluntary, and that I retain the right to withdraw at any time without providing a reason. I understand that withdrawing will not impact any of my legal rights, and there will be no compensation for injury, if any, caused due to participation in this study.

With this understanding, I willingly consent to take part in this study.

Date:

Place:

Name of the participant:

(Signature/left thumb impression)

Spouse of:

Complete postal address:

This is to certify that the above consent has been obtained in my presence.

Signature of the Investigator:

Date:

Place:

Participant consent form (Hindi)

इस अध्ययन के लिए प्रतिभागी का पहचान नंबरः……

अनुसंधान का शीर्षकः भोपाल के चुनिंदा तृतीयक देखभाल अस्पतालों में गर्भवती महिलाओं के बीच भ्रूण-मातृ लगाव पर भ्रूण लक्षित मातृ गतिविधियों का प्रभाव - एक यादृच्छिक नियंत्रित परीक्षण।

शोधकर्ता छात्र का नाम: प्रिया कुमारी

फोन नं: 9785617430

शोध मार्गदर्शक का नाम : डॉ. लिली पोडर, एसोसिएट प्रोफेसर,(प्रसूहत एवं स्त्री रोग संबंधी नर्सिंग) , नर्सिंग कॉलेज, एम्स, भोपाल।

मुझे इस अध्ययन की प्रकृति एवं उद्देश्य और इसके संभावित जोखिमों / लाभों तथा अध्ययन की अनुमानित अवधि एवं अन्य प्रासंगिक जानकारी के बारे में विस्तारपूर्वक समझा दिया गया है। मुझे पता है कि इस अध्ययन में मेरी भागीदारी स्वैच्छिक है तथा मैं इस अध्ययन से किसी भी समय बिना कोई कारण बताए, अपना नाम वापस लेने के लिए स्वतंत्र हूं और नाम वापस लेने पर मेरी चिकित्सा देखभाल या कानूनी अधिकारों पर कोई प्रभाव नहीं पड़ेगा।

मैं समझता/समझती हूं कि इस अनुसंधान में मेरी भागीदारी से मेरे बारे में एकत्र की गई जानकारी और मेरे चिकित्सीय दस्तावेजों के किसी भी भाग को एम्स के जिम्मेदार व्यक्तियों द्वारा ही देखा जाएगा। मैं इन व्यक्तियों को मेरे रिकॉर्ड प्राप्त करने की अनुमति प्रदान करता/ करती हूँ।

मैं उक्त अध्ययन में भाग लेने के लिए सहमत हूं

(प्रतिभागी के हस्ताक्षर / बांए अंगूठे का निशान)

दिनांक:

स्थान:

प्रतिभागी का नाम:

पति का नाम:

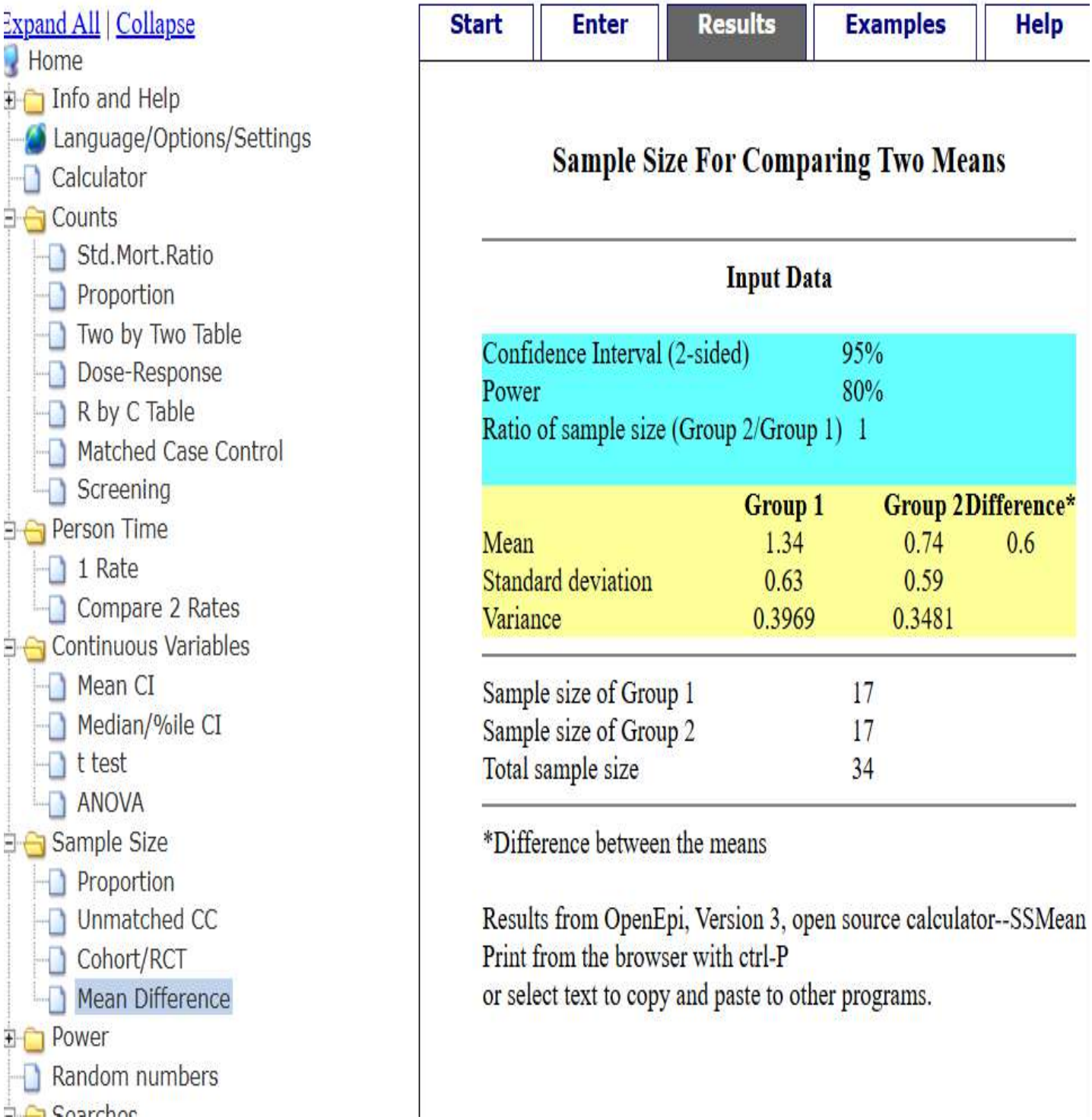
डाक का पूरा पता:

प्रमाणित किया जाता है कि उक्त सहमति मेरी उपस्थिति में प्राप्त की गई ।

छात्र शोधकर्ता के हस्ताक्षर दिनांक……स्थान……

ANNEXURE – 9

OPEN EPI SAMPLE SIZE CALCULATION



Expand All | Collapse
Home
Info and Help
Language/Options/Settings
Calculator
Counts
Std.Mort.Ratio
Proportion
Two by Two Table
Dose-Response
R by C Table
Matched Case Control
Screening
Person Time
1 Rate
Compare 2 Rates
Continuous Variables
Mean CI
Median/%ile CI
t test
ANOVA
Sample Size
Proportion
Unmatched CC
Cohort/RCT
Mean Difference
Power
Random numbers

Start | Enter | Results | Examples | Help

Sample Size For Comparing Two Means

Input Data

Confidence Interval (2-sided)	95%
Power	80%
Ratio of sample size (Group 2/Group 1)	1

	Group 1	Group 2	Difference*
Mean	1.34	0.74	0.6
Standard deviation	0.63	0.59	
Variance	0.3969	0.3481	

Sample size of Group 1	17
Sample size of Group 2	17
Total sample size	34

*Difference between the means

Results from OpenEpi, Version 3, open source calculator--SSMean
Print from the browser with ctrl-P
or select text to copy and paste to other programs.

ANNEXURE – 10

MASTER DATA SHEET

Socio-demographic variables of experimental group & control group

Experimental Group= 1

Control Group= 0

PIN	Group	Age	Religion	Socio EC	Residence	Type of D	Type of F	Marriage D	Social S	Edu Of M	Occ of M	Hours of W
2	1	24	1	2	2	1	2	1	1	2	10	0
4	1	28	1	2	2	1	2	2	3	2	10	0
6	1	28	1	2	2	1	2	2	1	3	10	0
8	1	30	1	1	2	1	2	1	1	2	10	0
10	1	29	1	3	3	1	1	1	4	3	10	0
12	1	30	1	3	3	1	2	2	1	2	10	0
14	1	28	1	2	2	2	2	2	1	3	10	0
16	1	30	1	2	2	2	2	1	1	2	3	2
18	1	31	1	2	2	2	1	2	4	1	2	2
20	1	29	1	2	2	2	1	1	4	2	3	2
22	1	23	1	2	2	1	2	1	1	3	10	0
24	1	19	1	3	3	1	2	1	1	4	10	0
26	1	23	1	2	3	2	2	1	4	3	9	1
28	1	23	1	3	3	2	2	1	2	4	10	0
30	1	27	3	2	2	2	1	1	4	2	3	2
32	1	22	2	3	3	2	3	1	1	3	10	0
34	1	27	1	3	2	1	1	1	4	3	5	1
36	1	21	2	2	2	2	2	1	1	3	10	0
38	1	26	1	2	2	2	2	1	1	2	10	0
40	1	25	1	3	3	1	2	1	1	3	9	1
42	1	27	1	2	2	1	1	1	4	2	3	2
44	1	27	1	2	2	2	2	1	1	2	3	2
46	1	26	1	2	2	2	2	2	1	2	9	1
48	1	25	1	2	2	1	2	1	1	2	10	0
50	1	21	1	3	1	1	2	2	1	4	10	0
52	1	29	1	2	2	1	1	2	1	2	2	1
54	1	23	1	3	2	1	2	2	1	2	10	0
56	1	26	1	2	3	1	2	2	1	2	9	1
58	1	25	1	3	2	1	1	2	1	2	10	0
60	1	28	1	3	3	2	3	2	1	2	5	1
1	0	30	1	3	3	1	2	3	1	4	10	0
3	0	29	1	2	2	2	1	1	4	2	3	2
5	0	23	1	3	3	1	2	1	1	3	10	0
7	0	22	1	3	3	2	2	1	1	4	10	0
9	0	23	1	2	2	2	3	1	1	3	9	1
11	0	28	1	2	2	2	2	2	2	2	10	0

13	0	25	2	3	1	2	2	1	1	4	10	0
15	0	23	1	3	3	2	3	1	1	4	10	0
17	0	24	1	3	2	1	1	1	4	3	10	0
19	0	26	1	3	3	2	2	1	1	3	10	0
21	0	26	1	3	3	2	2	1	1	3	9	1
23	0	21	2	2	2	2	1	1	4	3	10	0
25	0	19	1	3	1	1	2	1	2	4	10	0
27	0	27	2	2	2	2	2	1	1	2	10	0
29	0	26	1	4	3	1	3	2	2	4	5	2
31	0	21	2	3	2	2	2	1	1	4	5	2
33	0	27	1	3	2	2	1	2	4	2	4	1
35	0	24	1	2	2	1	2	1	1	2	9	1
37	0	26	1	2	2	1	2	1	1	3	9	1
39	0	25	1	2	2	1	2	1	1	2	10	0
41	0	29	1	3	3	1	1	1	4	3	10	0
43	0	28	1	2	2	1	2	2	1	3	10	0
45	0	29	1	2	2	2	2	2	2	3	9	1
47	0	30	1	2	2	2	2	1	1	2	9	1
49	0	27	1	3	2	2	1	1	4	3	5	1
51	0	31	1	1	2	2	2	2	1	2	3	2
53	0	29	1	3	2	2	2	2	4	2	10	0
55	0	24	1	3	3	2	2	1	3	2	10	0
57	0	28	1	2	2	2	2	1	1	2	9	1
59	0	25	1	1	2	1	1	1	1	2	3	1

Clinical variables of experimental group & control group

Experimental Group= 1

Control Group= 0

PIN	Gestation	Preg type	Antenatal V	Classes CB
2	30	2	2	1
4	30	1	2	1
6	30	2	2	1
8	28	1	2	1
10	28	2	1	1
12	30	2	1	1
14	30	1	2	1
16	32	1	2	1
18	30	1	2	1
20	30	1	2	1
22	28	2	2	1
24	29	2	1	1
26	32	2	1	1
28	32	1	2	1
30	32	1	2	1
32	32	2	1	1
34	30	2	1	1

36	32	2	1	1
38	30	2	1	1
40	32	2	1	1
42	29	1	2	1
44	30	1	2	1
46	30	2	2	1
48	28	2	2	1
50	30	2	1	1
52	28	1	1	1
54	32	1	2	1
56	30	2	2	1
58	30	2	2	1
60	30	2	1	1
1	32	2	1	1
3	28	2	1	1
5	30	2	1	1
7	30	2	1	1
9	28	2	2	1
11	30	1	1	1
13	32	2	1	1
15	30	2	2	1
17	30	2	2	1
19	30	2	2	1
21	30	2	2	1
23	30	2	1	1
25	28	2	1	1
27	32	1	2	1
29	32	2	2	1
31	30	2	1	1
33	30	2	2	1
35	30	2	2	1
37	28	2	2	1
39	32	2	2	1
41	30	2	1	1
43	30	2	1	1
45	30	2	1	1
47	32	1	2	1
49	29	2	1	1
51	29	1	1	1
53	32	2	2	1
55	31	1	2	1
57	30	1	2	1
59	30	1	2	1

Maternal antenatal attachment Questions M1-M10 (Q1-Q10) of experimental group & control group (Pre-test)

PIN	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
2	4	4	4	3	3	5	4	2	5	4
4	4	5	4	3	2	5	4	4	4	4
6	4	4	4	4	3	4	4	1	3	3
8	4	5	4	3	2	5	4	4	4	4
10	2	4	4	3	1	2	4	1	4	3
12	2	4	4	3	2	3	4	1	4	3
14	4	4	4	5	4	5	5	2	5	4
16	1	3	4	3	2	5	4	1	4	4
18	2	3	4	3	2	5	5	1	4	4
20	2	3	4	4	1	4	4	1	4	4
22	3	4	4	4	2	5	5	2	5	4
24	2	4	4	3	2	4	3	1	4	3
26	2	4	4	4	3	4	4	1	4	3
28	3	4	4	4	2	5	5	1	4	3
30	3	4	4	4	3	5	5	2	4	3
32	3	3	3	4	1	3	4	1	4	3
34	2	4	4	3	2	4	4	1	4	3
36	2	4	4	4	2	3	4	1	4	3
38	4	4	4	4	2	4	5	2	4	3
40	2	4	4	3	2	4	4	1	4	3
42	2	4	4	3	2	5	4	1	4	3
44	3	4	4	4	4	5	5	2	4	4
46	3	4	4	4	3	5	4	1	4	4
48	4	4	4	4	4	5	5	3	5	3
50	2	2	3	2	2	4	4	1	4	2
52	5	4	5	4	4	5	5	2	5	4
54	4	4	4	5	3	4	4	2	4	3
56	4	4	4	4	3	4	4	2	4	3
58	4	5	5	4	4	5	5	2	5	2
60	3	4	4	4	4	5	4	1	5	3
1	2	4	4	3	2	4	4	1	4	3
3	2	3	4	4	2	4	4	1	4	4
5	3	4	4	4	3	5	5	2	4	3
7	2	4	4	3	2	3	4	1	4	3
9	4	4	4	4	3	5	5	2	4	3
11	4	4	4	5	4	5	5	2	5	4
13	2	4	3	4	2	3	4	1	4	3
15	2	4	4	3	2	4	3	1	4	3
17	4	4	4	4	2	4	5	1	4	3
19	2	3	4	3	2	4	4	1	4	3
21	2	4	4	4	3	4	3	1	4	3
23	2	4	3	3	2	3	4	1	4	3

25	2	3	4	3	2	4	3	1	4	3
27	4	5	4	4	3	5	4	1	4	3
29	1	4	3	3	2	4	4	1	4	3
31	2	2	3	3	2	4	4	1	4	2
33	2	3	3	4	2	5	4	1	4	3
35	4	4	4	4	3	5	5	2	5	3
37	3	4	4	4	2	5	4	1	4	3
39	4	4	4	4	3	5	4	2	5	4
41	2	4	3	3	1	2	4	1	4	3
43	4	4	4	4	3	4	4	1	3	3
45	3	4	3	4	2	5	5	2	5	5
47	3	4	4	4	2	5	5	2	5	5
49	2	4	3	4	2	4	4	1	4	3
51	4	4	4	5	4	5	5	1	4	4
53	4	4	5	4	4	4	5	2	4	3
55	4	4	4	3	3	5	5	1	4	3
57	4	4	4	4	4	5	5	2	5	4
59	4	4	5	4	4	5	5	2	4	4

Maternal antenatal attachment Questions M11-M19 (Q11-Q19) of experimental group & control group (Pre-test)

PIN	M11	M12	M13	M14	M15	M16	M17	M18	M19
2	4	5	5	4	5	5	2	4	5
4	4	5	5	4	4	5	2	4	5
6	4	4	4	3	4	5	1	2	5
8	4	5	4	3	4	5	2	3	5
10	4	4	4	2	4	5	1	2	5
12	4	4	4	2	4	5	1	2	5
14	4	5	4	4	5	5	2	3	5
16	3	4	3	2	4	5	1	2	5
18	4	4	3	1	4	5	1	2	5
20	4	4	3	3	4	5	1	1	5
22	4	5	4	3	5	5	2	3	5
24	4	4	4	2	4	5	1	2	5
26	4	4	4	1	4	5	1	1	5
28	4	4	4	2	4	5	1	1	5
30	4	5	4	3	4	5	2	2	5
32	3	4	4	2	4	5	1	2	4
34	4	4	4	3	4	4	1	2	5
36	4	5	4	2	4	5	1	2	5
38	4	5	5	2	4	5	1	2	5
40	2	4	4	2	4	5	1	2	5
42	4	5	4	3	4	5	1	2	5
44	4	5	4	4	4	5	1	2	5

46	4	5	4	3	4	5	2	3	5
48	4	5	4	3	4	5	2	3	5
50	4	4	4	2	4	5	1	2	4
52	5	4	4	4	5	5	1	2	5
54	4	5	4	4	5	5	2	3	5
56	4	5	4	3	4	5	2	3	5
58	4	4	5	4	4	5	1	3	5
60	4	4	4	3	5	5	1	2	5
1	4	3	3	2	4	5	1	2	5
3	4	4	3	3	4	4	1	2	5
5	4	5	5	4	4	5	2	3	5
7	4	4	4	2	4	5	1	1	5
9	4	5	5	4	5	5	2	4	5
11	3	4	4	3	4	4	1	3	4
13	4	4	4	2	4	5	1	1	5
15	4	4	4	2	4	4	1	2	5
17	4	4	4	3	4	5	1	2	5
19	4	4	4	2	4	5	1	2	5
21	4	4	4	3	4	5	1	2	4
23	4	4	4	2	4	4	1	2	5
25	4	4	4	2	4	4	1	2	5
27	4	4	4	4	4	5	1	4	5
29	1	3	3	2	4	5	1	2	4
31	4	4	4	2	2	5	1	2	4
33	4	4	3	2	4	4	1	2	4
35	4	5	4	3	4	5	2	2	5
37	4	5	5	4	5	5	2	2	5
39	4	5	4	4	4	5	2	3	5
41	4	4	4	2	4	5	1	1	5
43	4	4	4	2	4	5	1	2	5
45	5	5	5	4	5	5	2	3	5
47	5	5	5	4	5	5	2	3	5
49	4	4	4	2	4	5	1	2	5
51	4	4	4	3	5	5	2	2	5
53	4	5	4	4	5	5	1	3	5
55	5	4	4	3	4	5	1	3	5
57	4	4	4	4	5	5	2	3	5
59	4	4	4	3	5	5	2	3	4

Maternal antenatal attachment Questions P1-P10 (Q1-Q10) of Experimental group & control group (Post-test)

PIN	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
2	5	5	5	4	4	5	5	5	5	5
4	4	5	5	4	4	5	5	5	5	4
6	3	5	5	5	4	5	5	4	4	4
8	5	5	5	4	4	5	5	5	5	4
10	4	4	4	4	3	4	5	4	5	4
12	4	4	5	4	3	5	5	3	4	4
14	5	5	5	5	4	5	5	4	5	4
16	3	4	4	4	4	5	5	4	5	4
18	4	4	4	5	4	5	5	4	4	4
20	3	4	4	4	4	5	5	4	5	4
22	5	5	5	4	3	5	5	3	5	4
24	3	4	5	4	3	5	5	2	4	4
26	3	5	5	5	4	5	5	2	5	4
28	4	5	5	4	3	5	5	2	5	4
30	4	5	5	4	3	5	5	4	4	3
32	4	4	4	4	4	5	5	4	4	3
34	3	5	5	5	4	5	5	3	5	4
36	3	5	5	4	2	4	5	2	5	4
38	4	5	5	5	4	5	5	3	5	4
40	4	5	5	4	4	5	5	3	5	4
42	4	5	5	4	3	5	5	2	4	4
44	4	5	5	5	4	5	5	4	5	4
46	4	5	5	5	5	5	5	3	5	4
48	5	5	5	5	4	5	5	4	5	4
50	4	4	4	3	3	5	5	3	4	3
52	5	4	5	5	4	5	5	3	5	4
54	4	5	5	5	4	4	4	2	5	4
56	4	5	4	5	4	4	5	3	5	4
58	4	5	5	5	5	5	5	4	5	4
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7	2	4	4	3	2	3	4	1	4	3
9	4	4	4	4	2	5	5	2	3	3
11	4	4	4	5	4	5	5	2	5	4
13	2	4	3	4	2	3	4	1	4	3
15	2	4	4	3	2	4	3	1	4	3
17	4	4	4	4	2	4	5	1	4	3
19	2	3	4	3	2	4	4	1	4	3
21	2	4	4	4	3	4	3	1	4	3
23	2	4	3	3	2	3	4	1	4	3
25	2	3	4	3	2	4	3	1	4	3
27	4	5	4	4	3	5	5	1	2	3

29	2	4	3	3	2	4	4	1	4	4
31	2	2	3	3	2	4	4	1	4	2
33	2	3	3	4	2	5	4	1	4	3
35	4	4	5	4	3	5	5	2	5	3
37	3	4	4	4	2	5	4	1	4	3
39	4	4	4	4	3	5	4	2	5	4
41	2	2	3	3	1	2	4	1	4	3
43	4	4	4	4	3	4	4	1	3	3
45	3	4	3	4	2	5	5	2	5	5
47	3	4	4	4	2	4	4	2	5	5
49	2	4	3	3	2	4	4	1	4	3
51	4	4	4	5	4	5	5	1	5	4
53	5	4	5	4	5	4	5	3	4	3
55	4	4	4	3	4	5	5	2	4	3
57	4	4	4	4	4	5	5	3	5	4
59	4	4	5	4	4	5	5	2	4	4

Maternal antenatal attachment Questions P11-P19 (Q11-Q19) of Experimental group & control group (Post-test)

PIN	P11	P12	P13	P14	P15	P16	P17	P18	P19
2	5	5	5	4	5	5	4	5	5
4	5	5	5	4	5	5	4	5	5
6	4	5	4	4	5	5	3	5	5
8	5	5	4	5	5	5	4	5	5
10	4	5	5	4	4	5	3	5	5
12	4	5	4	4	5	5	3	5	5
14	5	5	5	4	5	5	4	5	5
16	4	5	4	4	5	5	2	5	5
18	4	5	4	4	4	5	2	5	5
20	4	4	4	4	5	5	4	5	5
22	4	5	5	4	5	5	4	5	5
24	4	5	5	4	4	5	2	5	5
26	4	4	5	4	5	5	2	5	5
28	4	5	5	4	5	5	3	5	5
30	4	5	5	4	5	5	3	5	5
32	4	4	5	4	5	5	2	5	5
34	4	5	5	4	5	5	3	5	5
36	4	5	5	3	5	5	2	5	5
38	4	5	5	4	5	5	2	5	5
40	4	5	4	3	5	5	2	5	5
42	4	5	5	4	5	5	2	5	5
44	4	5	5	4	5	5	2	5	5
46	4	5	5	5	5	5	3	5	5
48	4	5	5	5	5	5	4	5	5
50	4	5	5	4	5	5	2	5	5

52	5	5	4	4	5	5	2	3	5
54	5	5	4	4	5	5	2	3	5
56	4	5	5	4	5	5	2	4	5
58	4	4	5	4	5	5	3	5	5
60	5	4	4	3	5	5	2	3	5
1	4	3	3	2	2	1	1	3	5
3	4	4	3	3	4	4	1	3	5
5	4	5	5	4	4	5	2	3	5
7	4	4	4	2	5	5	1	2	5
9	4	5	5	4	5	5	2	4	5
11	3	4	4	3	4	4	1	3	4
13	3	3	3	2	4	5	1	2	5
15	4	4	4	3	4	4	1	2	5
17	4	4	4	3	4	1	1	2	4
19	4	4	3	2	4	4	1	2	5
21	4	4	4	3	4	5	1	2	4
23	4	4	4	2	4	4	1	2	5
25	4	4	4	2	4	4	1	2	5
27	4	4	4	4	4	5	1	4	5
29	1	3	3	3	4	5	1	2	4
31	4	4	4	2	2	5	1	2	4
33	4	4	3	2	4	4	1	2	4
35	4	5	4	3	4	5	2	3	5
37	4	5	5	4	5	5	2	2	5
39	4	5	4	4	4	5	2	3	5
41	4	4	3	2	4	4	1	1	5
43	4	4	4	2	5	5	2	2	5
45	5	5	5	4	5	5	2	3	5
47	5	5	5	4	4	5	2	3	5
49	3	4	4	2	4	5	1	2	5
51	4	4	5	3	5	5	2	2	5
53	4	5	5	4	5	5	1	3	5
55	5	4	5	3	4	5	1	3	5
57	5	4	5	4	5	5	3	3	5
59	4	4	4	3	5	5	2	3	4

MASTER DATA SHEET KEY

Socio-Demographic Variables of the patient		
S.No.	**Variables**	**Code given**
1.	AGE (In Years) A) 18-25 B) 26-33 C) >33	 1 2 3
2.	2. RELIGION A) Hindu B) Muslim C) Christian D) Other (Specify) _____	 1 2 3 4
3.	Socio economic class (Modified Kuppuswamy socioeconomic scale 2023) Upper(I) Upper middle (II) Lower middle (III) Upper lower (IV) Lower (V)	 1 2 3 4 5
4.	RESIDENCE A) Rural B) Urban C) Semi urban	 1 2 3
5.	TYPE OF DIET A) Vegetarian B) Non-Vegetarian	 1 2
6.	TYPE OF FAMILY A) Nuclear B) Joint C) Extended	 1 2 3
7.	DURATION OF MARRIAGE A) <1 year B) 1-3years C) >3 years	 1 2 3
8.	ANY SOCIAL SUPPORT AVAILABLE AT HOME (if yes then answer below) A) Mother-in-law B) Sister-in-law C) Mother D) Spouse E) Any other (Specify)	 1 2 3 4 5
9.	EDUCATION OF MOTHER	

	A) Secondary and higher education B) Graduation and above	1 2
10.	OCCUPATION OF MOTHER A) Housewife B) Service	 1 2
11.	IF EMPLOYED, THEN HOW MANY HOURS IS SPENT AT WORK? A) < 8 HOURS B) > 8 HOURS	 1 2

Clinical Variable of the participants

S.No.	Characteristics	Categories	Code Given
1.	Gestation Age	28-30	1
		31-33	2
2.	Type of pregnancy	Planned	1
		Unplanned	2
3.	NO. Of Antenatal Visit (till now)	<3	1
		3-6	2
		>6	3
4.	Attended any child Birth classes	No	1
		Yes	2

Maternal antenatal attachment Score		
S.No.	**Variables**	**Code given**
1.	Over the past two weeks I have thought about, or been preoccupied with the baby inside me: A) almost all the time B) Very frequently C) Frequently D) Occasionally E) Not at all	 1 2 3 4 5
2.	Over the past two weeks when I have spoken about, or thought about the baby inside me I got emotional feelings which were: A) Very weak or non-existent B) Fairly weak C) In between strong and weak D) Fairly strong E) Very strong	 1 2 3 4 5
3.	Over the past two weeks my feelings about the baby inside me have been: A) Very positive B) Mainly positive C) Mixed positive and negative D) Mainly negative E) Very negative	 1 2 3 4 5
4.	Over the past two weeks I have had the desire to read about or get information about the developing baby. This desire is: A) Very weak or non-existent B) Fairly weak C) Neither strong nor weak D) Moderately strong E) Very strong	 1 2 3 4 5
5.	Over the past two weeks I have been trying to picture in my mind what the developing baby actually looks like in my womb: A) Almost all the time B) Very frequently C)Frequently D) Occasionally E) Not at all	 1 2 3 4 5
6.	Over the past two weeks I think of the developing baby mostly as: A) A real little person with special characteristics B) A baby like any other baby C) A human being D) A living thing E) A thing not yet really alive	 1 2 3 4 5

7.	Over the past two weeks I have felt that the baby inside me is dependent on me for its well-being: A) Totally B) A great deal C) Moderately D) Slightly E) Not at all	 1 2 3 4 5
8.	Over the past two weeks I have found myself talking to my baby when I am alone A) Not at all B) Occasionally C) Frequently D) Very frequently E) Almost all the time I am alone	 1 2 3 4 5
9.	Over the past two weeks when I think about (or talk to) my baby inside me, my thoughts: A) Are always tender and loving B) Are mostly tender and loving C) Are a mixture of both tenderness and irritation D) Contain a fair bit of irritation E) Contain a lot of irritation	 1 2 3 4 5
10.	The picture in my mind of what the baby at this stage actually looks like inside the womb is: A) Very clear B) Fairly clear C) Fairly vague D) Very vague E) I have no idea at all	 1 2 3 4 5
11.	Over the past two weeks when I think about the baby inside me I get feelings which are: A) Very sad B) Moderately sad C) A mixture of happiness and sadness D) Moderately happy E) Very happy	 1 2 3 4 5
12.	Some pregnant women sometimes get so irritated by the baby inside them that they feel like they want to hurt it or punish it: A) I couldn't imagine I would ever feel like this B) I could imagine I might sometimes feel like this, but I never actually have C) I have felt like this once or twice myself D) I have occasionally felt like this myself E) I have often felt like this myself	 1 2 3 4 5
13.	Over the past two weeks I have felt: A) Very emotionally distant from my baby B) Moderately emotionally distant from my baby C) Not particularly emotionally close to my baby D) Moderately close emotionally to my baby	 1 2 3 4

	E) Very close emotionally to my baby	5
14.	Over the past two weeks I have taken care with what I eat to make sure the baby gets a good diet: A) Not at all B) Once or twice when I ate C) Occasionally when I ate D) Quite often when I ate E) Every time I ate	 1 2 3 4 5
15.	When I first see my baby after the birth I expect I will feel: A) Intense affection B) Mostly affection C) Dislike about one or two aspects of the baby D) Dislike about quite a few aspects of the baby E) Mostly dislike	 1 2 3 4 5
16.	When my baby is born I would like to hold the baby: A) Immediately B) After it has been wrapped in a blanket C) After it has been washed D) After a few hours for things to settle down E) The next day	 1 2 3 4 5
17.	Over the past two weeks I have had dreams about the pregnancy or baby: A) Not at all B) Occasionally C) Frequently D) Very frequently E) Almost every night	 1 2 3 4 5
18.	Over the past two weeks I have found myself feeling, or rubbing with my hand, the outside of my stomach where the baby is: A) A lot of times each day B) At least once per day C) Occasionally D) Once only E) Not at all	 1 2 3 4 5
19.	If the pregnancy was lost at this time (due to miscarriage or other accidental event) without any pain or injury to myself, I expect I would feel: A) Very pleased B) Moderately pleased C)Neutral (i.e. neither sad nor pleased; or mixed feelings) D)Moderately sad E) Very sad	 1 2 3 4 5